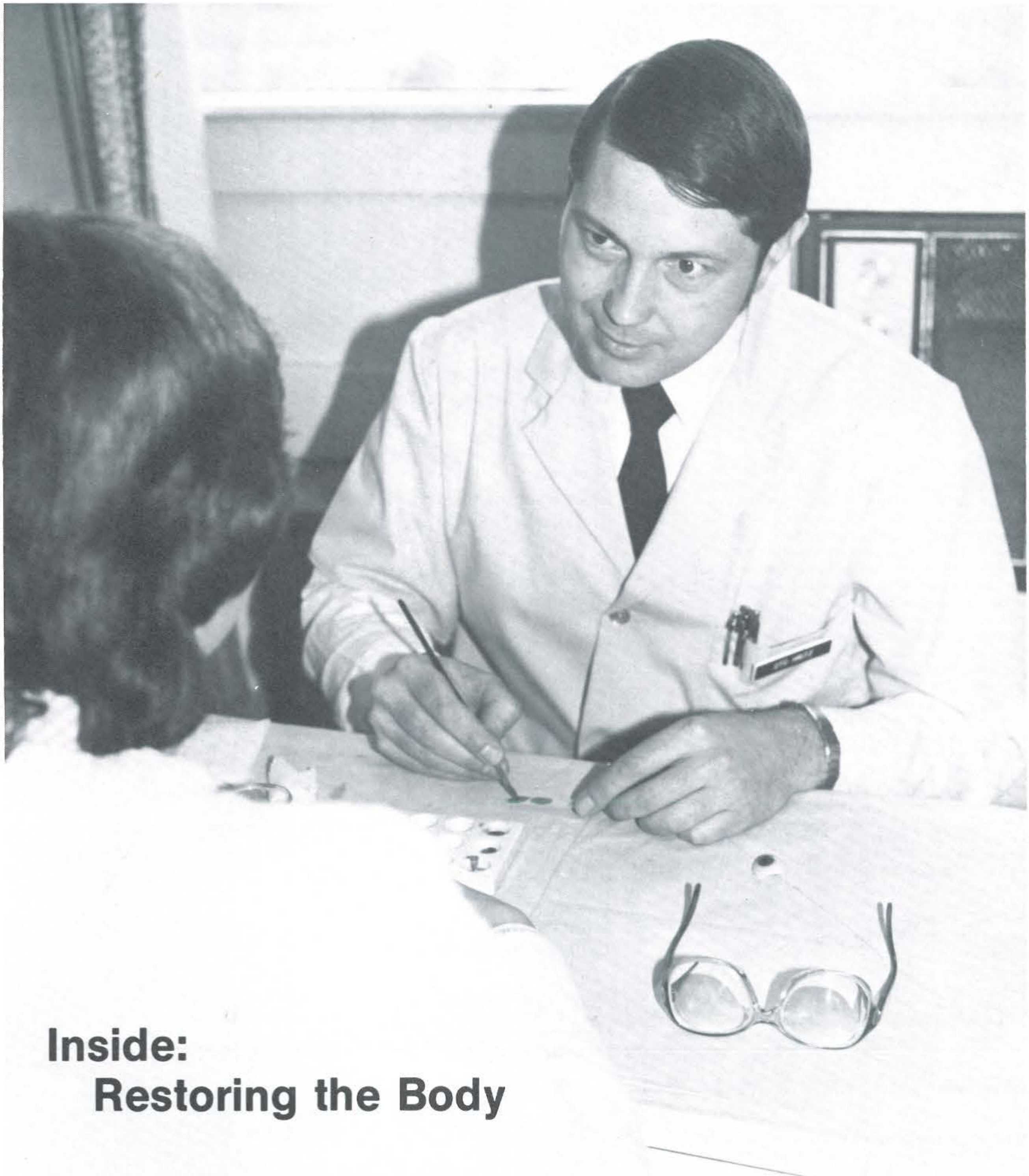
U.S. NAVY MEDICINE

May-June 1984



Inside:
Restoring the Body

U.S. NAVY MEDICINE

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From the Commander

Our Riflemen

"For exceptional meritorious service—your sustained superior performance, professional achievements, and leadership capabilities have proven you to be a superior sailor in all respects." These words, extracted from the letter of commendation to HM1 Wallace V. Liggett on his selection as the 1984 Naval Medical Command Sailor of the Year have a significance far beyond their recognition and praise of this outstanding member of our Medical Department. I am certain that they are applicable to many thousands of our men and women, hospitalmen, and dental technicians alike, serving in facilities throughout the world. As I reviewed the more than 60 nominations submitted by our commands certain performance characteristics consistently appear. First, they are our leaders. Each of them has demonstrated their willingness to accept the responsibility of leading petty officer and the ability to get the job done. A second pervasive characteristic is their effort and achievement in improving their educational level. Almost every one of the nominees, in addition to service schools, has acquired a significant number of college level courses during off-duty hours. A third characteristic of this outstanding group is their demonstrated expertise and professionalism in their rating. From deep sea diving to advanced dental laboratory to pharmacy technician—each demonstrates daily that they are vital to making our system work.

Some months ago, I was in the audience when General P.X. Kelley, Commandant of the Marine Corps, likened our hospitalmen and dental technicians to the marine rifleman—the building block of the marine fighting unit. The analogy is very apt. Each part of our team is interdependent; none can exist or function alone. Basic to each of the multitude of complex tasks encompassing our activities is the support and dedication of our enlisted personnel. They are the building blocks from which much of our strength is derived. They are truly our riflemen.

During the last few weeks the Navy Medical Department has given praise and recognition to 10 of our outstanding sailors; the finalists in this year's program. I know, however, that there are many thousands more throughout our commands whose contribution may not always be recognized nor appreciated. To each of you—Thank you.

William M. McDermott, Jr.
RADM, MC, USN

Photo by HM1 James Beasley

RADM McDermott sits at an oak, rolltop desk used by successive commanding officers of the Naval Medical School from 1902 until 1942. The desk was restored recently after being found in a basement storeroom at the NAVMEDCOM headquarters.

Food Poisoning

1. One hundred people attended a summer picnic at which a variety of "bring your own special recipe" foods was served. That evening, many of the attendees became ill with severe stomach cramps, nausea, and vomiting which lasted only a few hours. What more specific information would help you in making a presumptive diagnosis and identifying the offending recipe? (Answers on page 11)

(A) The time delay between ingestion and symptom onset.
(B) The specific types of food served and their major ingredients.
(C) The proportion of people who ate the suspected food and became ill.
(D) The proportion of people who did not eat the suspected food yet became ill.
(E) Blood and stool culture results.

The latent period between ingestion and onset of symptoms often follows a classic pattern in food poisoning cases. Staphylococcal food poisoning, for example, has a mean latent period of approximately 3-5 hours and exhibits a classic bell-shaped distribution around this mean. The offending agent can also be correlated with the type of food involved. Staphylococcal food poisoning is often implicated with foods requiring a lot of handling and which are rich in protein such as creams and custards. The key to epidemiologic investigation of a food-borne illness is comparison of the number of people who became ill after eating a specific food to the number of people who did not eat the suspected food yet became ill. This comparison is helpful in determining an "attributable risk" to the foods served. Blood and stool cultures would not be helpful in this case since the offending agent was probably *Staphylococcus.*

2. Match the following symptoms with their most likely etiology:

(1) *Staphylococcus*
(2) *Salmonella*
(3) *Clostridium perfringens*
(4) *Clostridium botulinum*
(5) *Amanita phalloides*

A. Latent period of 12 hours, fairly mild diarrhea without vomiting or fever.
B. Latent period of 24 hours, fever, diarrhea, and vomiting (in some cases).
C. Latent period of 3-5 hours, severe cramps, nausea, and vomiting; short duration.
D. Latent period of 12-48 hours, progressive descending paralysis.
E. Proper heating of raw meat prevents infection with live organisms.
F. Proper cooking and storage prevents accumulation of the heat-stable toxin.
G. Characteristically a meat dish with spores which are heat-activated producing toxins.
H. Most outbreaks due to home-canned food; a preformed toxin.
I. Diphasic illness; initial severe GI symptoms followed by liver, kidney, and CNS involvement and, often, death.

Staphylococcal food poisoning is the result of ingestion of a toxin which resists boiling (heat stable) usually produced by coagulase-producing staphylococci. Prevention depends on both elimination of the contamination source (such as purulent wounds on food handlers) and proper temperature storage both before and after cooking. There is a short latent period of approximately 4 hours with rapid onset of nausea, vomiting, and, occasionally, diarrhea without accompanying fever. Death is very rare and symptoms abate quickly.

Salmonella food poisoning is the result of ingestion of as few as 100 organisms which existed in raw meat or meat products prior to preparation. Infection can easily be prevented by adequate cooking. Symptoms generally appear within 24 hours and consist of fever and diarrhea with occasional vomiting. Although food handlers are also commonly infected, they are not carriers but additional cases.

Clostridium perfringens food poisoning is caused by ingestion of either type A or C *Clostridium perfringens* spores. These spores become heat-activated and produce several toxins, the most potent of which is alpha toxin. Meat products are most often implicated and prevention is easily accomplished by either eating the prepared food immediately after cooking or by proper refrigeration. The latent period is approximately 12 hours and diarrhea, the primary symptom, is often so mild that the actual diagnosis goes unrecognized.

Botulism results from ingesting a toxin produced by spores of *Clostridium perfringens* types A, B, E, and, rarely, F. Most cases result from improper home canning which activates the spores. The spores then produce a heat-labile toxin which prevents the release of acetylcholine at cholinergic synapses. Respiratory paralysis is the usual cause of death. Prevention is easily accomplished by using proper canning techniques and by boiling the canned food prior to consumption.

Amanita phalloides mushrooms produce heat-stable cyclic polypeptides which are extremely toxic to the liver and kidneys. The illness is diphasic, the first phase characterized by gastrointestinal symptoms, the second phase is marked by renal and liver involvement with CNS signs as the terminal presentation. There is a 50 percent fatality rate with no commonly available antidote. □

Dear U.S. Army, Thank You!

It sure was a long ride!—8 hours in a C-130 listening to the monotonous drone of the engines and trying to sleep on the cargo pallets. At last we were there: South Korea and our home for the next week as a SEAL detachment performing training maneuvers with the Republic of Korea (ROK) Special Forces. We traded our C-130 for the freedom of parachutes, forgetting for a moment that we were far from home, yet awakened to reality as we landed in the cold springtime water of Chinhae Harbor.

Korea was exciting—and kimche isn't as bad as everyone says. We were engaged in diving operations using rubber "Zodiac" boats as transportation from the salvage ship USS *Reclaimer* (ARS-42). That good feeling changed on the fourth day of diving when the seas became too rough and the operations were canceled for the day after several of us reported unfavorable conditions on our first dive. After transferring from one rubber boat to another, landing on my stomach as I had so many times before, we returned to the *Reclaimer*.

At first it was just an uncomfortable sensation which slowly turned to a dull ache in my stomach. Perhaps a nap would help I thought; anything to take my attention from the rocking seas. Shoulder pain; why would I have pain in my left shoulder when I inhale deeply? In the 2 hours since the rubber boat transfer, my stomach had become tense and painful. Although I had seen it before in others, it was difficult to admit that it may have happened to me—the acute abdomen.

I notified the *Reclaimer's* executive officer and we began the 3-hour steam for shore, as the corpsmen nervously inserted an IV and NG tube. The U.S. Army helicopter (a UH-1) was waiting there to begin the long flight to Seoul in the dark and rainy night. I had been here before, too—but as the flight surgeon—not the patient. We stopped three times, twice to refuel and once to change choppers.

While refueling at one of the stops, I was transferred to an ambulance. The attendant, an E-3 Army medic, told me that I just had appendicitis and that I would be OK—he'd seen it before. I thanked him for his words of encouragement and quietly wished that it were really as simple as that. By now my abdomen was as rigid as a tabletop and the pain was just bearable, each breath bringing a shooting pain to my left shoulder. One more hop over the mountains to go.

The last stop was the U.S. Army's 121st Evac Hospital in Seoul. When I entered the emergency room with a blood pressure of 60/30, the cardiovascular surgeon who had the surgical watch asked me what I thought I had. When I said, "Probably a perforated silent ulcer," he replied, "Well, let's go see!" During the next few hours, he patched the rhent in my posterior splenic capsule, oversewed the ruptured gastric artery, and emptied 3000cc of irritating blood from my peritoneum.

Over the next 2 weeks, I enjoyed the compassionate physicians, considerate nursing staff, and the cheerful and diligent medics. In a few days my wife joined me and we slowly walked around the base as I recuperated, mingling with the friendly Korean people—and thankful to be alive.

During the medevac I had thought that I wouldn't make it to Seoul; the pain worsening with each breath, the lightheadedness preventing me from sitting up. The Army helicopters, the hospital, the surgeon, and all the support personnel required to make the evolution a success performed their functions flawlessly. And I am deeply grateful. Thank you, U.S. Army.

A Naval Flight Surgeon

Oral Manifestations of the Smokeless Tobacco Habit

CDR E.H. Hall, DC, USN
CDR G.T. Terezhalmy, DC, USN

The use of smokeless tobacco is a worldwide habit practiced by over 22 million people in the United States.(*1*) It is used (particularly among women) primarily in the rural areas of the South and the North-Central and Northwestern states. Since 1974 there has been a resurgence in the use of smokeless tobacco.(*2-5*) Heavy media advertising by sports and entertainment personalities has been accompanied by steady sales increases of 11 percent per year since the mid 70's.(*6*) The major new market for smokeless tobacco products is the young male high school, college, and military population.(*5*) A brief inspection of the tobacco shelves at any Navy or Marine Corps exchange will show more than a dozen types and brands of smokeless tobacco, some of them marketed for the first time within the last 2 or 3 years. There are a number of noxious sequelae to the prolonged use of smokeless tobacco, including an increased risk of oral carcinoma.

Historical Perspective

The Carib Indians of the West Indies used snuff and chewing tobacco for hundreds of years before Columbus arrived in the New World.(*2*) Subsequently, throughout the centuries, many preparations of smokeless tobacco have achieved popularity worldwide. *Snuff,* a finely ground powder of tobacco and herbs, was used as a sternutatory, a substance that is sniffed into the nose to cause sneezing and subsequent clearing of congestion.(*7*) Snuff is still used in the United States today, but in a different way. A small amount is "dipped" from the can, and the "pinch" is placed in the mucolabial fold, usually in the anterior mandibular area. *Chewing tobacco* is less finely ground. A "chew" of the leaf tobacco is usually placed in the mucolabial fold and allowed to dissolve partially in the saliva. *Plug tobacco* is a hard, compressed rectangle of tobacco, herbs, and resins. A small "quid" is placed in the mucolabial fold. Many users of smokeless tobacco chew or dip for most waking hours (some use it 24 hours a day)(*1*)

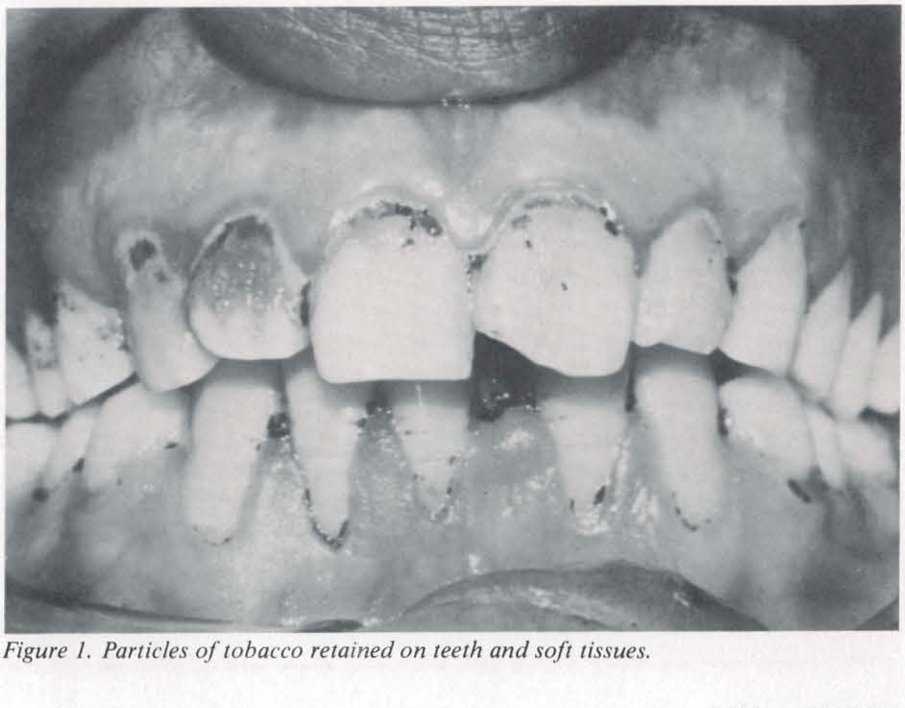

Figure 1. Particles of tobacco retained on teeth and soft tissues.

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and must continually spit out excess tobacco juices. The nicotine absorbed through the oral mucous membrane acts as a stimulant, eventually habituating the user to the continued use of tobacco products.(*1*)

Diagnosis

Users of smokeless tobacco usually retain small particles of tobacco on teeth and oral soft tissues even when they are not chewing or dipping (Figure 1). There may be associated discoloration and abrasion of teeth, bad breath, changes in the senses of taste and smell, gingival recession (Figure 2), and periodontal destruction in areas of high tobacco concentration. Characteristically, in long-term users, a thick white-to-brown folded mucosal plaque (Figure 3) may be observed where the chew is habitually kept.(*8*) In patients with a limited history of smokeless tobacco use, only a slight wrinkling or superficial whitening of the mucosa may be evident.(*5*) The leukoplakia usually is a benign focal hyperparakeratosis resulting from chronic irritation.(*9*) Minor salivary glands in the affected area may be severely damaged, resulting in loss of function.(*10*)

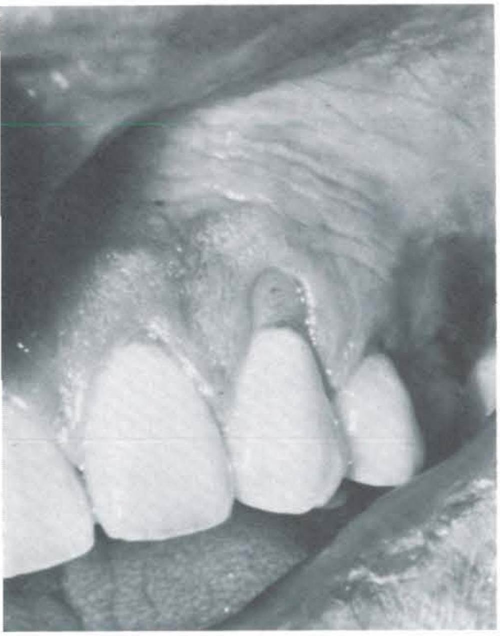

Figure 2. Gingival recession

Carcinogenic Potential

Numerous investigators have studied the relationship between the use of smokeless tobacco and oral carcinoma.(*2,10-14*) Winn et al.,(*15*) in a case control study of southern women, showed that there are four times as many carcinomas in users of smokeless tobacco as in nonusers and estimated the annual incidence of oral and pharyngeal cancer among snuff dippers at 26 cases per 100,000. The risk increases with longer exposure and appears to be the highest after the age of 50.(*16*) N′-nitrosonornicotine, a nitrosamine found in smokeless tobacco, has been shown to have carcinogenic activity.(*4,11*) Other substances commonly mixed with smokeless tobacco, such as betel nut, lime, buyo leaf, or areca nut, have been reported to increase the carcinogenic potential of the tobacco.(*17*) However, when concentrates of these substances are applied daily to the oral mucosa of laboratory animals, experimenters have consistently failed to produce carcinoma.(*11,17-20*) Although experimental cause and effect have not been definitely established, many investigators believe there is a close relationship between prolonged use of smokeless tobacco and oral carcinoma, particularly in the mucolabial fold.(*1,2,4,11-15,17,21-23*)

A full range of ulcerative and verrucoid epidermoid lesions may be seen in users of smokeless tobacco, but one distinctive type of squamous cell carcinoma is particularly associated with prolonged smokeless tobacco use.(*23*) The verrucous form is a well-differentiated, exophytic, slowly growing, locally invasive carcinoma without distant metastases. Clinically, it appears as a warty, slowly enlarging mass on the buccal mucosa, alveolar ridge, or gingiva of older men (Figure 4). Since it was first described, verrucous carcinoma has been associated with the use of smokeless tobacco; however, the connection has never been proven.(*24-26*)

Treatment

Patients presenting with a history and signs of smokeless tobacco use should be advised to discontinue the practice. If the patient is unwilling or unable to stop, an effort should be made to have the patient move the chew from location to location to reduce prolonged irritation to any one mucosal area. A biopsy should be made of any leukoplakic area that fails to return to normal appearance within 2 weeks of the discontinuance of tobacco use. Gingivobuccal carcinoma not involving bone or regional lymph nodes may be managed by wide local excision. When there is bone involvement, the alveolus is resected, and a radical neck dissection should be performed. The 5-year survival rate is approximately 50 percent.(*12*) New foci are frequently seen if the patient continues to use smokeless tobacco, and careful followup examinations are required.(*13*) Because there is a slight chance of metastasis and because there has been some recurrence after irradiation,(*24,25*) the treatment of choice for verrucous carcinoma is wide local excision. The prognosis is generally good.

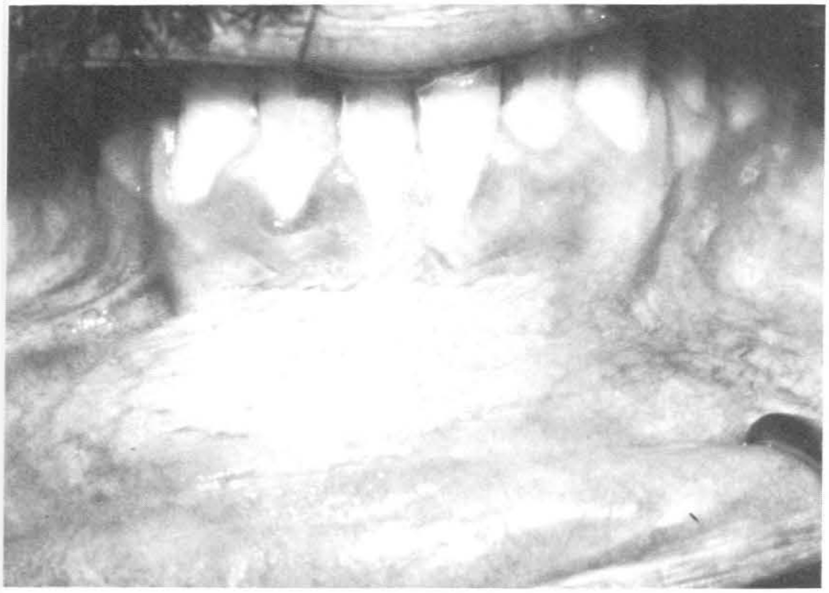

Figure 3. Thick mucosal plaque where tobacco is habitually kept.

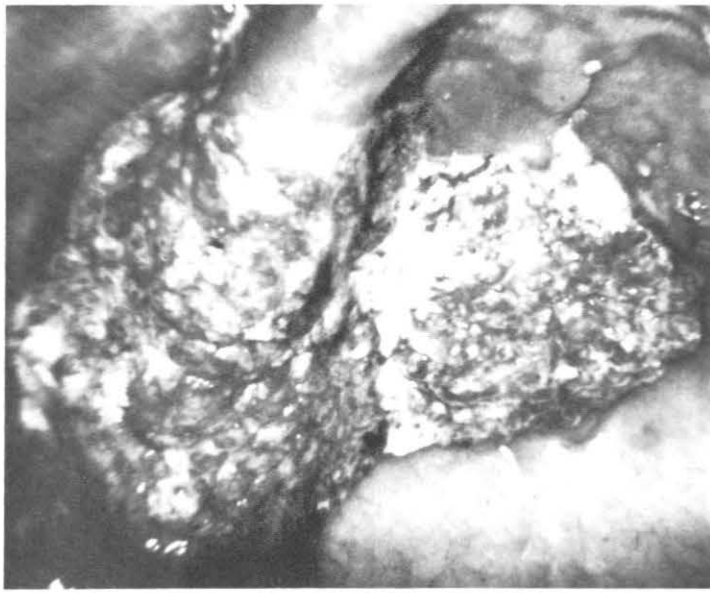

Figure 4. Verrucous carcinoma

Conclusion

Although the use of snuff, chewing tobacco, and plug tobacco is statistically less pathogenic than the smoking of tobacco, it is not the benign alternative that advertising and some medical articles in the British literature suggest.(*1,6,7,27,28*) Clinicians should be aware of the oral manifestations of prolonged smokeless tobacco use and its consequences. We suggest that clinicians advise their patients to discontinue use of all tobacco products. Patients who do not should be reexamined regularly for signs of malignant changes.

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Yokosuka Intern Returns as Staff Pediatrician

Two premature babies were fighting for their lives recently at U.S. Naval Hospital Yokosuka, but they also had a doctor in their corner fighting along with them. Pediatrician LCDR Seiji Kitagawa was serving his first day on call when twins were born 3 months early to Turner and Deborah Totten.

When he got the call, arrangements were made for transfer of the babies to Kanagawa Children's Medical Center in Yokohama because the Neonatal Intensive Care Unit at Yokosuka has limited capabilities in caring for critically ill infants. "Very sick infants are often sent to Japanese children's hospitals if they cannot be transported to hospitals in Hawaii or the Philippines," Kitagawa explained.

Throughout the babies' extended treatment, Dr. Kitagawa, a former intern at Yokosuka who speaks fluent English and Japanese, was able to act as translator for the parents and physicians at the Japanese hospital.

Nine years ago Dr. Kitagawa was one of six Japanese doctors who spent a full year as an intern at USNH Yokosuka. He returned this past October after 8 years in the United States.

Dr. Kitagawa began his career path in 1975 at USNH Yokosuka, under the direction of Dr. Corder Campbell, who was head of the Pediatric Department. Dr. Campbell and other Navy physicians were most influential in Kitagawa's decision to join the U.S. Navy.

Many other interns have gone on to study in the United States; others stayed there to begin their practice of medicine. A handful of interns joined the military services, but only one—Seiji Kitagawa—chose the U.S. Navy.

Kitagawa credits the year at USNH Yokosuka with his success in the States. "I have to say that just like 8 years ago, the Yokosuka internship today is a unique situation and an important stepping stone for Japanese medical students. It is almost impossible to obtain medical training in the United States immediately following medical school in Japan. You need to have at least 1 year's exposure to U.S. medicine in order to go to the States," Kitagawa said.

"I think some of the interns have the same feelings I had during my internship. Occasionally it was very difficult to communicate with some Americans who had never seen or spoken to a Japanese. Some had great difficulty even being examined by Japanese doctors," he said. "Now, I don't experience that conflict, but it took almost 5 years to overcome this situation."

For those patients who do feel uncomfortable about being examined by a Japanese intern, Dr. Kitagawa sees the responsibility for easing that concern as belonging to him and the other staff physicians. "In each case, we must explain to the patient or the sponsor, 'This is one of our Japanese interns, a postgraduate physician—a doctor—and after his examination, I will come back and go over the history physical and we'll talk again.' If you explain, they'll understand," he pointed out. "The most important medical practice is communication."

The two babies have now recovered thanks in part to the efforts of Dr. Kitagawa. Their grateful parents expressed their appreciation by giving their sons Japanese names. "They told me they wanted to have Japanese names for their children and asked me to select names for them," Kitagawa said. "I chose Tetsuo (strong like iron) and Tadashi (fine, right person)." According to their father, "Dr. Kitagawa has really been helpful. And all of the Japanese people have just gone out of their way for us. We wanted to show our appreciation."

Dr. Kitagawa examines a young patient at USNH Yokosuka.

As a former intern, Dr. Kitagawa will continue sharing his experience and knowledge with each new class of interns, helping them adapt to life at USNH Yokosuka and providing encouragement to young doctors who wish to study in the United States. □

—Story by Bill Doughty, Public Affairs, U.S. Naval Hospital, Yokosuka, Japan.

Grief Support Groups in a Hospital Setting

LCDR Glenn H. McCranie, CHC, USN

In a hospital the primary focus of treatment is the patient. Medical resources are tasked with providing the best care possible in alleviating pain, preventing death, and restoring the patient to full functioning. Sometimes, in spite of every medical endeavor, disease or physical trauma overwhelms human physical resources and the patient dies.

As this medical drama unfolds the patient's family is on the periphery and usually plays a minor role. A sensitive staff will keep the family informed of medical procedures and prognosis, while the principal concern remains on the patient. When death occurs supportive care by attending medical care givers is then transferred to family members. Condolences are expressed by attending medical care staff, the primary physician is usually summoned to the ward, and a chaplain will remain with the family until departure from the hospital. Papers are frequently signed by the next of kin for release of physical remains to a local mortuary.

This scenario will vary according to locally established hospital procedures, age of the patient, and length of illness. Families sometimes may linger longer in the hospital, reacting as if in a daze even when death had been anticipated for a period of time. With the family's departure full medical attention is transferred again to other patients and there is a return to a normal ward routine.

Death of a patient and departure by family members was previously viewed as cessation of treatment, but recent studies on bereavement have focused on the aftermath of death and its effects upon family members. An attending physician may later be surprised to see family members again in his office complaining of anxiety, insomnia, and other psychological symptoms. Treatment of these symptoms has resulted in the recognition by physicians and other care providers that death of a spouse, child, or sibling is one of the most severe forms of psychological stresses. Studies of bereavement in the past decade are beginning to reveal a more direct correlation between illnesses and grief. Intervention and support soon after a death may assist in relieving future demands placed on limited medical resources.

Research of community resources in the Tidewater area of Virginia revealed an absence of support grief groups for military family referrals by medical care givers during early stages of bereavement. One religious community service center does offer a support group for surviving spouses on a random schedule for a small fee to the participants. This absence of local resources led to the development and implementation of grief support groups by staff chaplains in the Pastoral Care Service, Naval Hospital, Portsmouth, VA. The rationale for development of groups was to provide a place for referrals and implementation of preventive counseling for military families and/or individuals in the early stages of bereavement.

The initial groups were organized for surviving spouses and, from this beginning in early 1980, other support groups evolved. At present, there are also groups for children who have experienced the death of a parent(s) or sibling, and parents who have lost a child.

Groups were designed to unite individuals suffering from similar emotional stresses and allow them the opportunity to share the difficulties of bereavement. In a group milieu, individuals meet and with others gain an understanding of the trauma of death and permit themselves to verbalize grief externally. This verbalization is the common therapeutic element used in dealing with the normal grief process. A widow with tears in her eyes stated, "I thought I was going crazy. It is helpful just to hear someone else tell of the same experiences."

LCDR McCranie is staff chaplain with the Pastoral Care Service, Naval Hospital, Portsmouth, VA 23708.

The groups also provide further support to military families after a death when friends and other family members may discontinue communicating. Persons who suffer grief sometimes have unrealistic expectations that there will be a quick return to a normal daily routine after a death and are surprised when they are still grieving 3 months later while other close relationships function as if the death had never occurred. A wife said, "After the letters of condolences and telephone calls stopped, I felt the military no longer cared. Old military friends just drifted away."

Following is a brief description of the models used, organization of groups, and stages of grief observed.

Surviving Spouse Support Group

A list is obtained from the Decedent Affairs Coordinator of names, dates of deaths, primary next of kins, and home addresses. Four to six months after a death, a letter is mailed from the Chief of Pastoral Care Service to the survivor providing information on the group and date, time, and location of the meetings. A self-addressed card is enclosed for response concerning participation in a group.

Groups are limited to four to six participants as this permits more opportunities for sharing in an emotional, tense atmosphere. Session topics include: circumstances concerning the death, changed relationships with other family members, financial and physical security, status in the community setting as a widow or widower, new personal habits, diet, sex, and concept of future. It was observed that groups follow similar topical patterns without them being introduced by a facilitator.

The first session is the most traumatic with tears and difficulty in verbalization. Past experiences are relived as participants tell of the death of a spouse. Other participants do not attempt to prevent this open expression of grief nor stop tears. After this first session, there is a short period of depression which may last 2-4 days. Some participants have later stated that following the initial session with its intense emotional stress, they had vowed not to return. However, following this session, participants are more willing to share their emotions of the new status as widows/widowers and become supportive members of the group process.

Within the original design, each group met for four sessions, conducted 2 hours weekly and facilitated by a Navy chaplain. Groups were segregated according to the sex of the surviving spouse. It was theorized that emotional needs of the sexes would be different in the early stages of bereavement. This decision was later supported by female participants who preferred segregation in these stages. To meet in a mixed group early in the bereavement process was viewed as unfaithfulness to the deceased spouse. However, it was observed that males tended to begin socializing with females sooner and were dating within a year following the death of a spouse. This early socialization or dating was seldom observed in the female groups.

The groups met on a weekday morning at the main medical facility and evening groups were implemented later and now meet at an outlying medical clinic. After a year, the number of group sessions were increased from four to six when participants expressed a need for additional sessions.

Upon termination of the weekly group sessions, followup continues for 1 year. Each quarter, the group meets for one 2-hour session to share recent emotions and events. These sessions allow for monitoring of participants and referrals for additional treatment if abnormal grief patterns are observed.

Participants with younger children expressed the need for a children's group as they become more aware of their emotional needs and the beneficial assistance received from group participation.

Children Who Had Experienced the Death of a Parent or Sibling

The children's group was a response to requests by parents for assistance and the absence of groups in the local geographical area. Letters are mailed to military families who have suffered the death of a child or parent and have other children in the home. The correspondence is sent 4-6 months after the death and states the nature of the group, time, date, location, and an invitation of participation by all members of the family.

Total family participation within the group setting allows participants to observe other children and adults reaction to grief. One 13-year-old girl stated after a session dealing with changed family eating habits, "We are not the only people who now eat at Hardee's a lot."

Usually the children come to the first session under some duress from the parent(s), but it is the children who assume leadership for the family attending the following sessions. Parents have stated that during the first session they experienced stress when their children cried and had a desire to protect them. This acceptance by the children in dealing with bereavement is usually the emphasis for some new families to be more open in the group setting.

It was observed during progression of groups that parents and children interacted more, and this interaction continued in the family car on the way home after a session. The sessions allowed the family to discuss death in an open and frank way in the presence of other families and how it is experienced by each member without a personal sense that another member of the family must be protected.

Children openly shared the anxiety they experienced concerning a death. If it was the loss of a parent, they had fear for the other parent's death. They stated classmates at school did not understand their feelings and they became sensitive to now being different from other children due to the death. Some children have experienced psychosomatic illnesses similar to those of the deceased and had a great fear that they too were dying. Children often stated feelings that had not been expressed at home and parents were sometimes surprised that children had those feelings.

A group for children includes them in the bereavement process. Often it is forgotten that children grieve when a parent or sibling dies and, when they are not as expressive of those feelings, it may be assumed by parents that their children are dealing well with grief. Often it is the opposite, for these new emotions are confusing and a child may be silent while feeling great emotional trauma. Groups with both children and parents present allow the children to have the protection of parents while providing an atmosphere for expression of bereavement.

Parents Who Have Experienced the Death of a Child

The emotional needs of parents are different from a surviving spouse or a child. When a child dies the parents not only have lost a child but part of their future. They have experienced the loss of passing on family traditions, family name, and their own hopes and expectations of themselves. Research has revealed that, rather than unification of a couple in this type of tragedy, the opposite occurs. Harriett Schiff stated that in marriages where a death of a child occurs, there is a 75 percent divorce rate. Latent marital difficulties surface during the stress of bereavement as parents attempt to deal with their own grief. Intervention is needed to assist in prevention of potential damage to the marriage.

A group of parents met at the invitation of staff chaplains for a period of 4 months at the main medical facility. This group then voted to open the assemblage to families other than military in the area since resources were not available. The group applied and received a charter from a national organization and now meets at a local community center. The group is in the second year and has become a referral resource for those military families experiencing the death of a child. A Navy chaplain serves as an advisor to the group.

Stages of Bereavement

Systematizing bereavement into stages assists in constructing the emotional process into some manageable order. Care must be exercised in understanding that stages are theoretical models with artificial delineations and are only for the comprehension of grief and not for diagnoses. An individual does not necessarily go through each stage and may experience several stages in a short span of time. It was observed that stages are more circular and individuals repeated each of the stages several times. As time increased from the point of death the intensity of each stage decreased and the individual gained an understanding of the normal grief process.

John Bowlby speaks of three stages: protest, disorganization, and reorganization. Warren Oates, a pastoral counselor, in his own analysis of grief adopts six phases: shock, numbness, struggle between fantasy and reality, breakthrough of mourning, selective recollection connected with stabbing pain, and finally acceptance of loss and reaffirmation of life itself. Yorick Spiegel divides the course of grief into four stages: shock, the controlled stage, regression, and adaptation. These stages are overlapping and include the same basic components of grief. The determining factor of a division of grief into stages and the placement of a specific emotion into a particular stage is usually dependent upon the individual interpreting the grief process.

Observation of the bereavement in the three major support groups over a period of time appeared to divide into five distinct stages: shock, attempt to return to normalcy, depression, anger, and restructuring. These stages are not original and the placement of the sequence of stages was derived from observing people during a painful and emotional period in their lives.

Shock. When death is finally announced to the family by the physician, there is usually a shock even when death has been anticipated for a period of time. There may be some expression of personal anguish and a feeling of numbness. A woman after a death was singing while doing her housework, amazed that others were sad, and stated she experienced no emotions. Some events seem to occur by themselves and the individual feels detached as a participant. Wonderment is expressed at having made it through the difficulty of a funeral/memorial service. Some have reported an out-of-the-body experience where they observed themselves detached from their bodies and looked upon events as a bystander rather than as a participant.

After the initial expression of grief an attempt is made to control emotions so "to be strong for the other members of the family." This shock stage usually lasts 1-3 weeks.

Attempt to Return to Normalcy. After departure of family members and guests following the funeral/memorial service, the family is usually required to be dependent upon their own resources. There is a bustle of activity—signing legal papers, filing insurance claims, children returning to school, and an emphasis upon keeping busy. Widows will remodel the house by rearranging furniture or some type of structural modification to the home. The primary room that is physically remodeled is the kitchen. Upon completion of this task, the widow/widower will then avoid this room. Friends have a need to "cheer up" the bereaved. Children will attempt to protect parents as a reversal of roles occurs and children assume more of the supporting parental roles. To outward appearances the family is adapting well to the death and are now "over it." A response often stated by a family during this stage is, "We are doing fine." This period is usually 1-6 months in length.

Depression. When the reality of the permanency of death occurs, the awareness that the deceased will not return, the activity in the house decreases; depression occurs. An individual is surprised, for it comes after a period of activity. "I was doing so well" is often stated. Medical help is sought most often in this stage for the individual may have insomnia, dreams of the deceased, or a sensation of "what's wrong with me?" Crying is more common and adults and children will attempt to seek solace by escaping to their rooms. Friends are at a loss in comforting the bereaved and avoid talking about the deceased in personal conversations. Expectations are that all grief should be fully resolved by this time and a complete return to a normal family routine. This stage may be 3-6 months in length.

Anger. Anger is openly expressed toward God, children, friends, medical professionals, self, and the deceased. It may be a free-floating anger which encompasses any and all personal contacts. Individuals cannot understand this anger and why it is sometimes directed toward loved ones. One wife threw away her husband's favorite rug in a moment of anger and then was frightened by the intensity of her anger. A part of this emotion is the sense of guilt that the individual feels toward self due to this anger. This stage is a new awareness of hidden emotions and open expression of these feelings.

Restructuring. The individual is in the process of building a separate life style without the deceased. Restructuring begins at the time of death but does not become a predominant stage until approximately a year after death when the individual is aware that restructuring is occurring. Guilt is not as intense when feeling happy, and relationships with the opposite sex may develop without a sense of being unfaithful for the widow/widower. Persons began to realize slowly that they were capable of functioning again and regain control and direction of their lives. Parents will reassume the parental role and free children of the parent-child role and permit them to be children again. The individual does not enjoy being protected by friends and will verbally state a need to be allowed to function as a person. Emotional stress may be experienced by other family members and friends as independence is established. The restructuring continues for the remainder of an individual's life, for old methods of living are no longer adequate and the individual realizes there is no return to the past.

Summary

These groups were organized in response to the absence of local resources in the area for military families during the early stages of grief. For the medical staff the groups are a resource for referrals and assurances of continued support for families. They provide short term assistance during the period of stress and were not developed to eliminate all symptoms of the grief process. It is recognized that bereavement is forever and individuals will grieve for the remaining years of natural life. Sometimes there will be periods when grief will be intense as if the event had recently occurred, especially on birthdays, anniversaries, and holidays. The groups assist in gaining an understanding of this grief process and clarifying what is normal and abnormal grief. Group sharing provides an opportunity to share mutual stresses without having to apologize for pain and tears. It is a place for members to provide assistance for each other.

During this past year other groups have been organized by churches in the Tidewater area as a direct result of participants returning to their communities and assisting in the organization of local groups. This is due to the willingness of caring individuals in the medical community to participate with others in a normal, yet tragic, phase of the life cycle.

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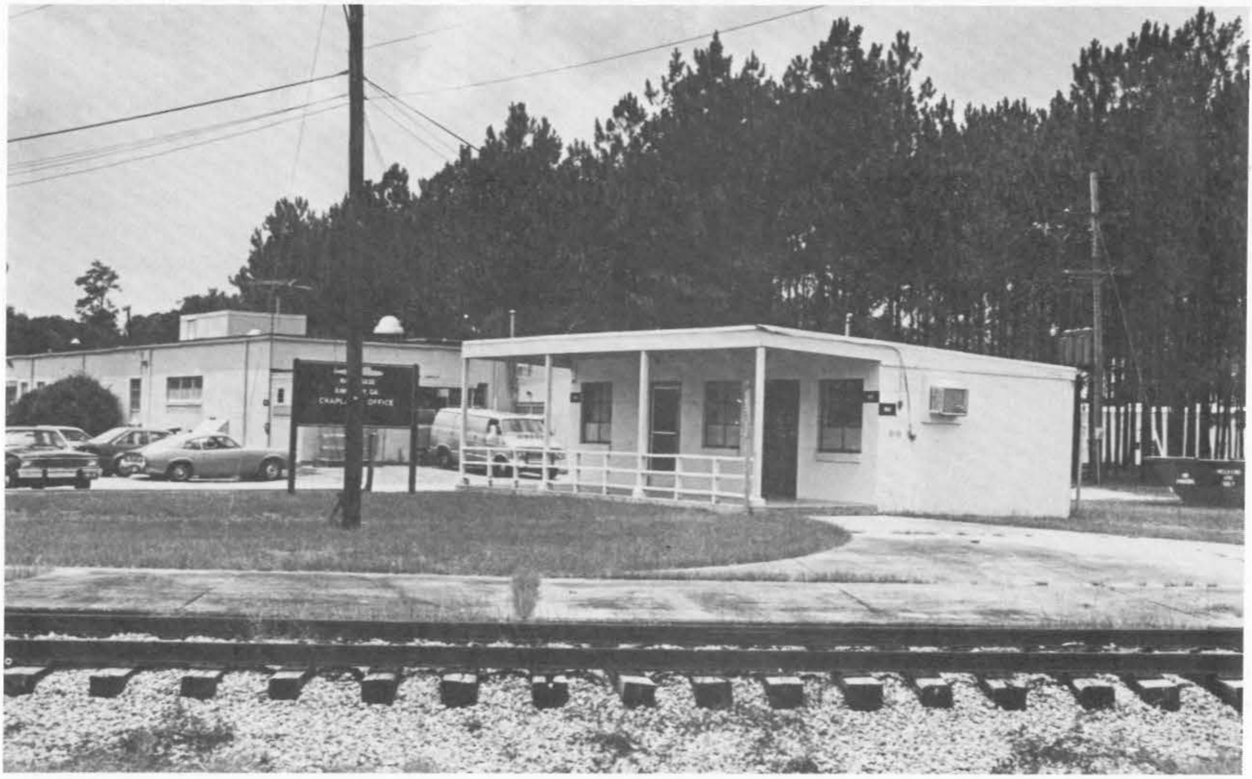
Spiegel Y: *The Grief Process.* Nashville, Abindgon, 1977. □

Answers from page 2

1. A, B, C, D
2. (1) C, F (2) B, E (3) A, G (4) D, H (5) I

Original 1980 site of Medical Clinic



Photos by PHAN Bob Sabo

Pioneer Spirit Lives On

LT Carol Mann, NC, USN

They call them pioneers—men and women who were first in their billets fulfilling the need to build the Naval Submarine Base, Kings Bay, GA.

Many people have never heard of Kings Bay or know where it is. Kings Bay is the east coast homeport of the Trident submarine and a refit site for a squadron of nine Poseidon submarines backfitted with Trident I missiles. I went there as one of the first two nurses to help establish a new medical clinic.

A chief hospital corpsman initiated medical care at the base rail depot building. As the base grew, so did the medical needs of the military community. The next facilities housing the clinic included a refurbished dwelling in the adjacent community of St. Marys, GA, and a triple-wide trailer on the base.

Our first outpatient clinic was the small five-room house. An orientation tour took less than a minute. The three bedrooms were converted into two examining rooms and a doctor's office. The kitchen was transformed into a laboratory and nursing station. Part of the screened porch was used for the pharmacy and patient check-in area. The check-in desk, patient records division, and waiting room all occupied the living room. There was one bathroom with a tub and one toilet which needed constant repairs due to its almost clockwork breakdown trying to keep up with the staff and patient load. A linen closet served as the medical supply area. This facility soon housed 15 staff members.

The other half of the clinic, located in a triple-wide trailer on the base, housed Champus counseling, preventive and environmental health, occupational health, and administrative personnel.

Facilities were limited. The lab could perform routine hematocrits, urinalyses, and cultures.

The clinic saw 25 patients a day in March 1981. By July that figure had doubled, and there were days when as

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many as 75 patients were seen. The local Gilman Hospital, conveniently across the street from the clinic, did all X-rays and most of the lab work.

With extreme versatility, the staff coped with almost any situation, including frequent regular repairs of the toilet, sinks, plumbing, and routine repairs of medical equipment.

Because the waiting room was frequently crowded, patients often had to wait outside. Check-in procedures were sometimes done in the yard. Patients were extremely tolerant of the situation and usually understood the problems with our limited facilities.

The greatest strain was having 15 people working in close quarters and seeing an average of 50-60 patients a day. Patients and staff had to cooperate.

Also, by July 1981 plans were underway to move the clinic into larger temporary quarters on the base, which was an office building previously housing the resident officer in charge of construction (ROICC). With little advance notice the clinic staff converted the old building into a workable medical facility.

New features included two more examination rooms, a room for treating and screening patients, ambulance reception, a larger pharmacy, and a more independent lab with new equipment and capabilities. Of course, the increased office space was a welcome relief. We now have a real waiting room and check-in counter. The nursing area was finally out of the pharmacy and lab.

Here we experienced another major increase in staff and patient growth. We were to occupy that facility for 10 months but outgrew it in 6. Even though somewhat crowded and small, it was extremely functional. This clinic was special because it was designed and made operational solely by the staff.

We moved into the new building in September 1981 with no interruption in patient care. Four hours into the transfer, surrounded by movers, trucks, and equipment still packed in boxes, staffmembers were suturing a

Two views of the new Kings Bay Medical/Dental Clinic

badly lacerated foot while other walk-in patients were evaluated and treated.

Many times while awaiting delivery of equipment and supplies we felt as if we were functioning in a field environment. A patient with chest pain was carried to the hospital in a chair because we lacked a wheelchair.

Many changes in policies occurred based on increases in patient load, staff size, and the capacity of the various buildings we occupied. Through it all, the staff continued to provide optimal services. The myriad of medical disorders and situations thrust upon us forced the staff to perform in every aspect of clinic function from administration to patient care.

In June 1982 the permanent medical/dental clinics officially opened, marking a new level of health care at Kings Bay. They provide adequate primary medical and dental care for eligible beneficiaries in the Kings Bay military community.

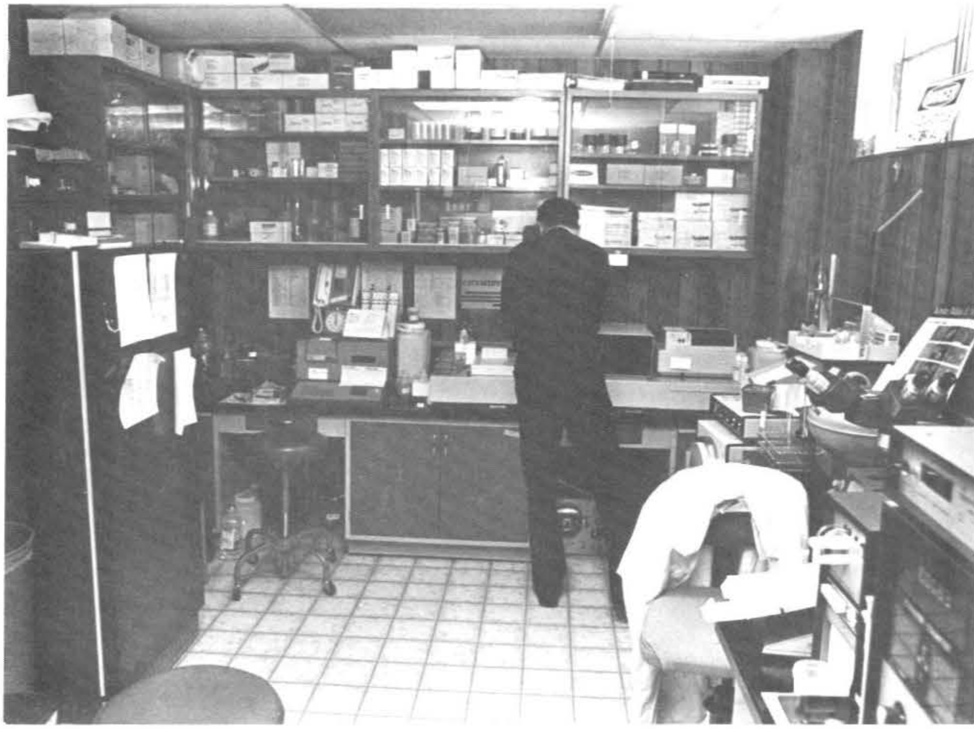
On the medical side of the house, more than 30 people staff the clinic. It has eight examination rooms, one minor surgery room, a large treatment room, an X-ray room, one physical therapy room, and an optometry section. It also has greatly expanded laboratory and pharmaceutical capabilities. There are four office spaces. The changes in equipment and structure have been phenomenal.

Regardless of which facility we occupied, certain consistent policies were always in effect. Effective leadership, a thorough knowledge of equipment, supply, and logistics, blended with the expertise of a talented and competent staff, insured the delivery of quality medical care throughout the developmental and operational phases at all three clinics.

Although the first and second phases of the evolutionary process are over, a third phase of growth is now occurring. Continual work and cultivation continues to bring this medical department to its full potential.

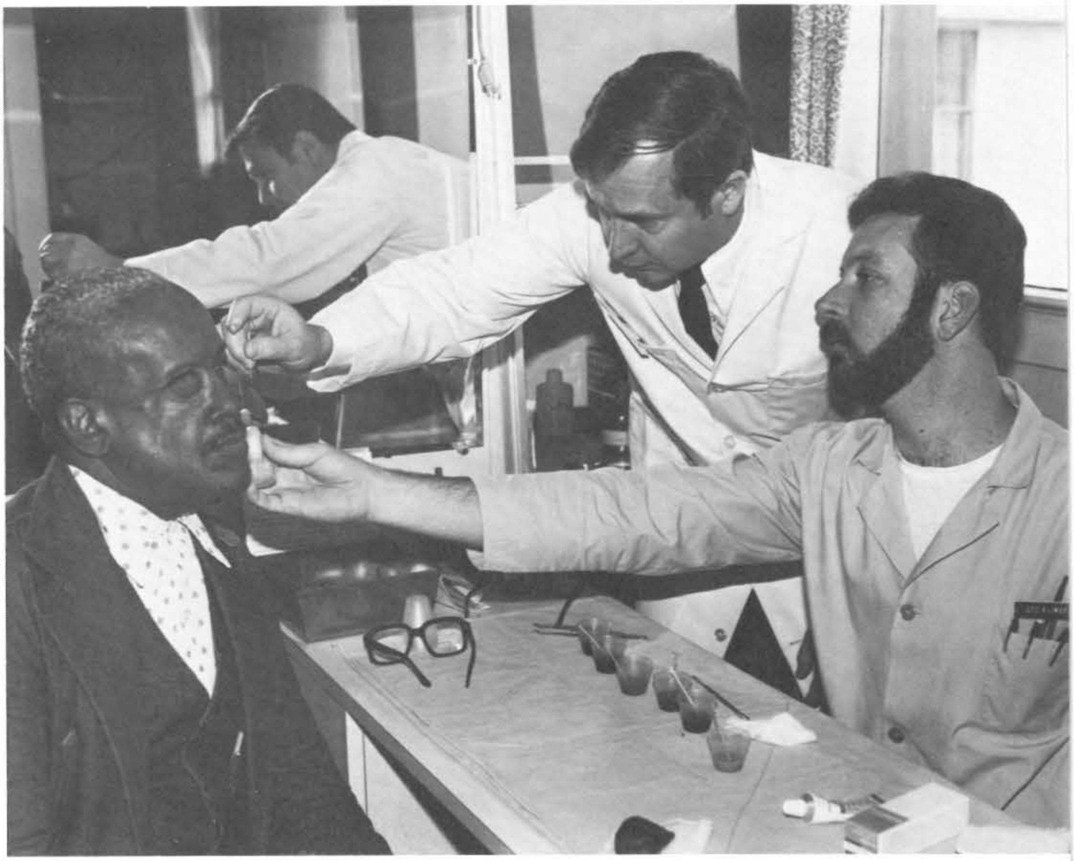
In my development as a nurse, I was as infantile as the clinic was when I first arrived. Never before having worked in an outpatient clinic, and now tasked with assisting in setting one up, and running it effectively, I had a lot to learn. I grew with the clinic.

Medical care at Kings Bay has been dispensed from train stations and linen closets. The lesson of it all is that new and modern facilities are not the only ingredients that make up a successful clinic. Along with bricks, stainless steel, and air conditioning, there must be maturity, dedication to duty and goals. These qualities make those elements we purchase and build work. That's the way it's been done at Kings Bay. □



Laboratory (above) and emergency room (below) in Interim Clinic Facility Number 2

Making Them Whole



Dr. Ostrowski checks the shade of the oculofacial prosthesis with maxillofacial trainee DT2 Thomas Klingle.

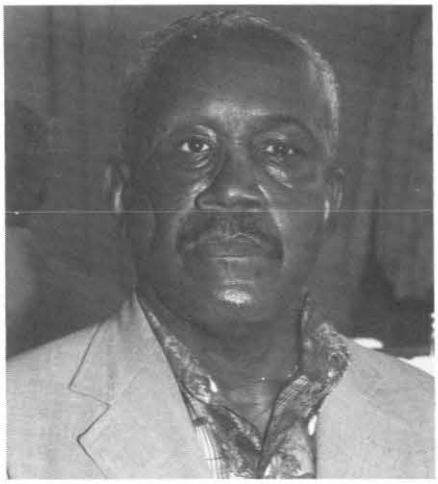
One of the most terrifying results of serious trauma or cancer can be the permanent loss or disfigurement of part of one's body. A limb that is lost accidentally or surgically to halt the spread of disease may be replaced by an artificial prosthesis and the patient returned to an active life. But what is to be done when a person loses a portion of the mandible, maxilla, or the upper part of the skull itself? How does one function in society after the loss of an eye, an ear, or part of the face? Where does a patient turn when restorative surgery will not suffice?

Providing solutions to these problems is the job of the Maxillofacial Prosthetic Division at the Naval Dental Clinic, Bethesda, MD. Working as a team, technicians fabricate the parts that help make a patient whole.

Most people are unfamiliar with the term prosthodontics and a greater number are less acquainted with the term maxillofacial prosthetics. Both terms relate to dental specialties in dentistry. Prosthodontic dentistry deals with the construction of fixed bridges, crowns, dentures, and other prostheses. Maxillofacial prosthetics is a subspecialty of prosthodontics. The maxillofacial prosthodontist fabricates prostheses used in the restoration of missing maxillae or portions of the mandible either intraorally or extraorally.

As an integral member of the hospital staff, the maxillofacial prosthodontist works closely with other specialists in otolaryngology, radiation oncology, neurosurgery, plastic surgery, pediatrics, OB/GYN, and general surgery. In fact, there are many clinical applications; often maxillofacial pros-

Maxillofacial resident CDR Thomas Faull, DC, examines coloration and marginal adaptation of oculofacial prosthesis.



Patient with finished oculofacial prosthesis in place.

A Select Profession

DTC Donald Hritz is a maxillofacial technician and instructor in the Prosthodontic Department at the Naval Dental Clinic, Bethesda, MD. As one of six maxillofacial technicians in the Navy, Hritz is a highly trained and experienced member of a very select profession. "We're in the position of helping people who have nowhere else to go." Chief Hritz is referring to that patient who may have lost an eye, ear, or other body part through accident or disease and where reconstructive surgery is not feasible. He and his colleagues are in the business of fabricating those missing parts and restoring the patient to useful function or to a cosmetically pleasing appearance. U.S. Navy Medicine *recently spoke with Chief Hritz about his work.*

DTC Hritz pours an ocular impression.

USNM: How does one become a maxillofacial technician?

DTC Hritz: All maxillofacial technicians first must be trained as laboratory dental technicians. They then must complete basic Dental Laboratory Technician School where they are trained to fabricate other appliances such as crowns, bridges, dentures, etc. Maxillofacial technician training is an advanced "C" school for laboratory technicians. You have to have at least 2 years' experience before applying and it's very competitive. There are only six maxillofacial technicians and five duty stations in the entire Navy. We have two billets here at Bethesda and one at each of the other training hospitals—Portsmouth, Great Lakes, Oakland, and San Diego.

Where are they trained?

They're all trained here and all learn the same techniques. Since we are such a small community we can keep one another informed about new techniques and innovations.

What kinds of appliances do you make?

Primarily custom artificial eyes, facial appliances, including ears, noses, cheeks, the tissue around eyes, cranial plates for accident victims or cancer patients who may have lost portions of their skulls, artificial breast prostheses for mastectomy patients, and custom implants for other body parts. On one occasion we made an artificial sternum of silicone that was surgically implanted to reconstruct a patient's chest. We do all this in addition to fabricating the more conventional oral appliances like full or partial dentures that are modified for patients who may have lost part of their oral tissues due to cancer or accident. In these cases we add the missing tissue to the appliance. Occasionally, we fabricate appliances for children and adults with cleft palates.

How do you fabricate an eye prosthesis?

We make an alginate impression of the eye socket and then fabricate the prosthetic eye pattern out of wax with the patient present to establish symmetry with the natural eye. A master stone mold is made and the eye prosthesis is processed in acrylic resin. We paint a small paper disc with acrylic water colors and then, through a lamination process, incorporate the disc into the eye prosthesis using a clear acrylic resin to give it depth and a lifelike appearance. The eye is painted in the patient's presence to achieve a good match with the natural eye.

What types of prostheses are in most demand?

The patients we see most frequently are accident victims. Car accidents and fires seem to take their toll on ears. Ears burn off or are abraded off rather easily. There's a little bit of skin and lot of cartilage sitting out there unprotected. In many cases a surgeon has so little left to work with that it's impossible to reconstruct an ear.

Is the prosthetic ear an exact copy of the original?

Not necessarily. We can make an ear for someone and it doesn't have to be an exact mirror image of the other as long as it's the same size, shape, and color. Slight differences will never be noticed. Besides, no one can concentrate on two ears at the same time. The human eye is not made to focus that way.

What about the eyes?

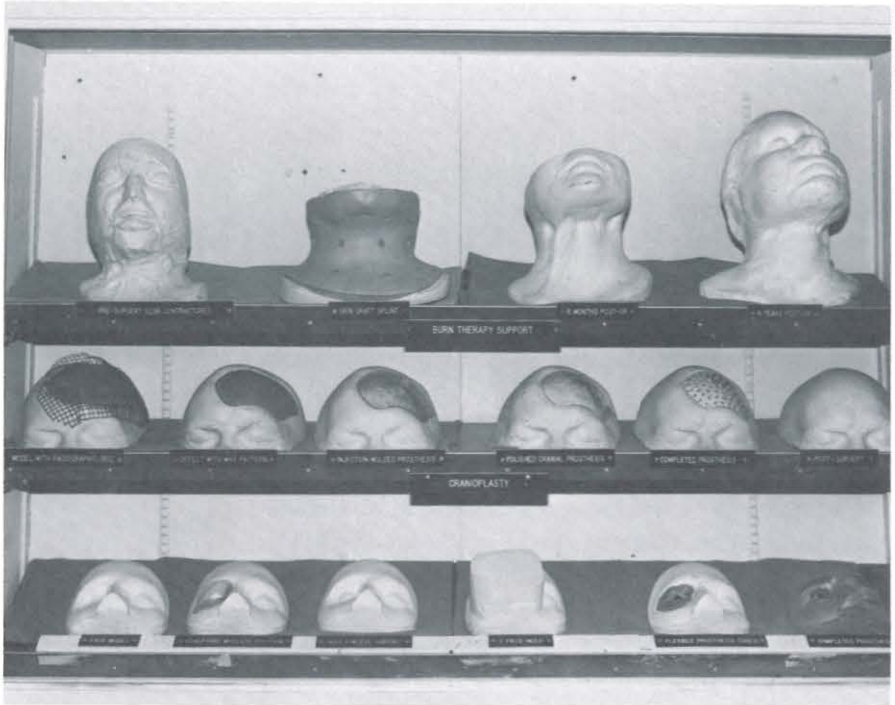
We try to make an exact duplicate of the natural eye. If there hasn't been too much tissue damage and trauma to the surrounding area and we get good lid contour and shape, the artificial eye will be indistinguishable from the remaining natural eye.

I have often been surprised to learn afterward that someone was wearing an artificial eye.

Most people cannot detect an artificial eye. Glasses with clear lenses can hide a lot by preventing light from shining directly into the eye. We recommend that our patients wear glasses with protective, tinted lenses, not so much to hide the artificial eye but to protect the one that's left.

Being one of six maxillofacial technicians in the Navy, your job has to seem somewhat special. You certainly offer a very unique service to your patients.

We are in the position of helping people who have sought help everywhere else. They've been to ENT and perhaps to plastic surgery, and no one is equipped to give them the appearance they had originally. If *we* can't do it they may have to live the rest of their lives the way they look. That's a big responsibility. — JKH



Photos by HM2 Dan Kelly

Examples of custom maxillofacial appliances.
Top row: Neck splint to support burn patient.
Middle row: Implantable cranioplasty prosthesis of heat-cured methyl methacrylate resin.
Bottom row: Mold construction for oculofacial prosthesis.

thodontists are called upon to fabricate customized prostheses that at first glance seem foreign to the oral cavity. Using a host of dental waxes, acrylic resins, and silicone-silastic materials they can fabricate artificial breasts for mastectomy patients, splints for reconstructive surgery for burn or cleft palate patients, artificial fingers, cranial plates for the replacement of missing parts of the skull, and even artificial sternums that can help reconstruct a chest cavity. "We are not surgeons and do not perform surgical procedures ourselves," points out CAPT John Ostrowski, DC, director of Bethesda's third-year maxillofacial prosthetic training program. "What we do is restore lost tissues using artificial substitutes. These are either worn externally by the patient or implanted surgically by the patient's physician."

The loss of an eye, ear, or nose requires the use of nonliving materials that look like and behave like living tissue. There are obviously limitations to what the maxillofacial prosthodontist can do, but with modern dental materials many of the prostheses come very close to duplicating natural features not only in structure but also in lifelikeness.

To learn this highly specialized skill and profession, both dental officers and technicians train at the Naval Dental Clinic's facilities in Bethesda. Maxillofacial prosthetic training for officers is an optional third-year extension of the normal 2-year prosthodontic residency program after which the dentist becomes board-eligible. During that third year the maxillofacial prosthodontic resident learns the additional clinical and technical skills and also serves rotations through the otolaryngology, plastic surgery, and radiation oncology departments at the Naval Hospital.

One dental officer a year may be trained at Bethesda to help fill the five maxillofacial billets at the Navy's major teaching hospitals. The one or two maxillofacial prosthetic technicians trained each year are assigned to billets at the same teaching hospitals. —JKH

HSETC Correspondence Courses

The following correspondence courses are developed and administered by the Naval Health Sciences Education and Training Command (HSETC), Code 212, Naval Medical Command, National Capital Region, Bethesda, MD 20814.

All requests for enrollment in Navy Medical Department correspondence courses must be submitted on NAVEDTRA 1550/1 (white card). Applicants should include their personal mailing address and the command address. Medical Department officers must include their designator. Completed NAVEDTRA 1550/1's should be mailed directly to HSETC. Requests from nonmedical personnel will be evaluated on an individual and "need-to-know" basis. Individuals completing or withdrawing from a course must return all text material. In cases where text material is not returned, the assistance of the command/commanding officer will be solicited. Course completion letters will be issued only when text material has been returned.

Retirement point credit is listed for each course but is only applicable to Naval Reserve personnel not currently on active duty. Refer to BUPERSINST 1820.3 for details. HSETC is accredited by the Eastern Regional Accrediting Committee of the American Nurses Association as a provider of continuing education for nurses and the American Medical Association's Accreditation Council on Continuing Medical Education as a provider of continuing medical education. Those HSETC-sponsored courses having continuing education credit will be identified and the specific amount of credit listed as contact hours.

Title: Physical Examinations and Health Records
NAVEDTRA Number: 10509-D1
Type: Officer-Enlisted
Revised: 1983
Assignments: 5
Points: 8
Text: *Manual of the Medical Department,* Chapters 15 and 16, Changes 95 and 96
Type: SP—For medical personnel only

Defines procedures for the physical examinations for induction, enlistment, and appointment to the commissioned rank of the naval service. It explains the physical standards for special examinations such as those for aviation, submarine and diving service personnel, previously hospitalized patients, and personnel discharged or released from active duty. Course has been expanded to include policies and procedures guiding the purpose, components, custody protocols, and events requiring the opening and closing of the military health record.

* * *

Title: Environmental Health and Safety "A"
NAVEDTRA Number: 10523
Type: Officer-Enlisted
Revised: 1982
Assignments: 4
Points: 8
Contact Hours (CME/CNE): 12
Text: Koren H: *Handbook of Environmental Health and Safety,* Vol. I, Pergamon Press, 1980
Type: Commercial

The first of a two-part nonresident program designed to examine the impact of food production and technology, insect and rodent control, and housing, institutional, recreational, and occupational environments on the ecosystem and subsequent health maintenance.

* * *

Title: Insect and Rodent Control
NAVEDTRA Number: 10705-D1
Type: Officer-Enlisted
Revised: 1982
Assignments: 7
Points: 14
Contact Hours (CME/CNE): 21
Text: *Military Entomology Operational Handbook,* NAVFAC MO-301, 1971
Type: SP

Presents practical instruction on controlling pests capable of adversely affecting military personnel and operations. It provides information on the life cycles and the medical and economic importance of pests. Guidance is also given on selecting pesticides that meet military requirements for safe and economical operation.

* * *

Title: Treatment of Chemical Agent Casualties
NAVEDTRA Number: 10765-B1
Type: Officer-Enlisted
Revised: 1983
Assignments: 3
Points: 6

Contact Hours (CME/CNE): 9
Text: TC-3-258 DRAFT, 1974; *Treatment of Chemical Agent Casualties,* with CH 1 NAVMED P-5041, 1974
Type: SP

Presents important techniques for battlefield treatment of chemical agent casualties and methods of protecting personnel from chemical agents. It explains the physiological and psychological effects of each agent and the recommended treatment.

* * *

Title: Control of Communicable Diseases in Man
NAVEDTRA Number: 10772-D1
Type: Officer-Enlisted
Revised: 1982
Assignments: 5
Points: 10
Contact Hours (CME/CNE): 15
Text: *Control of Communicable Diseases in Man,* 12th and 13th eds, American Public Health Association, 1975 and 1981
Type: Commercial

Highlights information on the control of communicable diseases. Included are the identification of each disease by clinical nature, laboratory diagnosis, and differentiation from allied or related diseases. Emphasis is placed on occurrence, infectious agent, reservoir, mode of transmission, incubation period, period of communicability, susceptibility and resistance, methods of control, and systems of reporting communicable disease.

* * *

Title: Decedent Affairs
NAVEDTRA Number: 10514-B
Type: Officer-Enlisted
Revised: 1983
Assignments: 2
Points: 3
Text: BUMEDINST 5360.1D, *Decedent Affairs Manual*
Type: SP

Provides a concise coverage of the duties and responsibilities of personnel concerned with care-of-the-dead procedures. Specifically, the course highlights the search, recovery, identification, preservation, and disposition of the deceased for whom the Navy is responsible.

Nonmedical personnel must have a written endorsement from their command verifying their responsibility for decedent affairs.

* * *

Title: Clinical Aspects of Cold Weather
NAVEDTRA Number: 10519
Type: Officer-Enlisted
Revised: 1983
Assignments: 2
Points: 4
Contact Hours (CME/CNE): 6
Text: *Clinical Aspects of Cold Weather Operations,* HSETC, 1982
Type: SP

Explores the epidemiology of cold injuries and other common conditions occurring during cold environment deployments. Emphasis is placed on host and environmental factors subjecting humans to cold injuries. The signs, symptoms, treatment, and prevention of specific freezing and nonfreezing injuries are addressed.

* * *

Title: Food Service Sanitation
NAVEDTRA Number: 10521
Type: Officer-Enlisted
Revised: 1982
Assignments: 2
Points: 4
Contact Hours (CME/CNE): 6
Text: *Food Service Sanitation Manual,* DHEW, 1976
Type: Commercial

Addresses the regulations and procedures for the procurement, storage, preparation, serving, and disposition of food, and the inspection of food service facilities.

* * *

Title: Supervision and Management
NAVEDTRA Number: 10522
Type: Officer-Enlisted
Revised: 1983
Assignments: 3
Points: 6
Contact Hours (CME/CNE): 9
Text: *Supervision and Management,* NAVFAC PWTC, Norfolk
Type: SP

Developed to provide first-line and new managers with information on various methods and styles of management. Course highlights basic theory on organization, human behavior, training, decisionmaking, management, performance appraisals, and evaluation.

* * *

Title: Aviation Medicine Practice
NAVEDTRA Number: 10912-C
Type: Officer
Revised: 1980
Assignments: 9
Points: 18
Contact Hours (CME/CNE): 27
Text: *U.S. Navy Flight Surgeon's Manual,* NAMI and Biotechnology, Inc., GPO, 1980
Type: OT—For medical personnel only

Addresses the physiology of flight, aviation psychology, and special considerations in aviation medicine concerning medications, personnel management, alcohol abuse, fatigue, aeromedical evacuation, emergency escape, and problems related to aircraft accidents. Special emphasis is placed on methods of selecting well-adjusted personnel who are physically equipped to withstand the severe demand of flight training.

Written for *commissioned officers.* Enlisted members wishing to enroll must include a written endorsement from a commissioned supervisor stating that the course pertains to the requestor's job.

* * *

Title: Blood Component Therapy
NAVEDTRA Number: 13121-B1
Type: Officer-Enlisted
Revised: 1983
Assignments: 2
Points: 4
Contact Hours (CME/CNE): 6
Text: *Blood Component Therapy: A Physician's Handbook,* American Association of Blood Banks, 1981
Type: Commercial—For medical personnel only

Provides key information in blood and blood component products available from the blood bank. It includes the fractionation of fresh blood, the concentration of the formed cellular elements, and the coagulation factors in each product. Indications for the use of blood component products and the calculation of the quantity needed for various medical disorders requiring hemotherapy are presented.

* * *

Title: Casualty Care
NAVEDTRA Number: 13122
Type: Officer-Enlisted
Revised: 1983
Assignments: 5
Points: 10
Contact Hours (CME/CNE): 15
Text: *Emergency War Surgery NATO Handbook,* GPO, 1975
Type: SP—For medical personnel only

Designed to familiarize Medical Department personnel with the NATO agreed upon treatment protocols for war wounded. Included are echelons of medical care, mass casualty management, physiological responses to injury, and general management of injuries resulting from conventional and nonconventional warfare.

* * *

Title: Environmental Health and Safety "B"
NAVEDTRA Number: 13126
Type: Officer-Enlisted
Revised: 1983
Assignments: 6
Points: 12
Contact Hours (CME/CNE): 18
Text: Koren H: *Handbook of Environmental Health and Safety,* Vol. II, Pergamon Press, 1980
Type: Commercial

The second part of an introduction to this increasingly critical field. It provides a comprehensive overview of ecological systems and the problems associated with maintaining them.

* * *

Title: Disability Evaluation
NAVEDTRA Number: 13127
Type: Officer-Enlisted
Revised: 1983
Assignments: 2
Points: 4
Contact Hours (CME/CNE): 6
Text: SECNAVINST 1850.4 (series), *Disability Evaluation Manual,* GPO
Type: SP

This course provides a comprehensive review of the Navy's Disability Evaluation System. Enrollment in this course is restricted solely to those personnel actively needing this information in the performance of their duties. A written command endorsement is required for all enrollees.

* * *

Title: Heat Stress
NAVEDTRA Number: 13128
Type: Officer-Enlisted
Revised: 1984
Assignments: 1
Points: 3
Text: *Prevention, Treatment, and Control of Heat Injury,* (TB MED 507; NAVMED P-5052-5; AFP 160-1), GPO, 1980
Type: SP

A new course expected to be available for distribution by July 1984. It concerns the diagnosis, treatment, and prevention of heat injury.

* * *

Title: Principles of Epidemiology
NAVEDTRA Number: 13123
Type: Officer
Revised: 1982
Assignments: 3
Points: 6
Contact Hours (CME/CNE): 9
Texts:
(1) *Principles of Epidemiology:* Manual 1-CDC-1981
(2) *Measures of Central Tendency:* Manual 2-CDC-1981
(3) *Statistical Measures Used in Epidemiology:* Manual 3-CDC-1981
(4) *Methods for Organizing Epidemiologic Dates:* Manual 4-CDC-1981
(5) *Disease Surveillance:* Manual 5-CDC-1981
(6) *Investigation of Disease Outbreak:* Manual 6-CDC-1981
Type: OT

An adaptation of the Center for Disease Control (CDC) course titled "Principles of Epidemiology" (30306). This course is directed at explaining the concepts, principles, and methods useful in the surveillance and investigation of communicable diseases. It is highly recommended that individuals contemplating enrollment have a basic knowledge of both microbiology and communicable disease control.

The course is *not* a study of the epidemiology of specific diseases.

Designed for Medical Department officer personnel. Requests for enrollment from enlisted members will be considered *only* when accompanied by a written endorsement from their command.

* * *

Title: Field Medical Service
NAVEDTRA Number: 13124
Type: Officer-Enlisted
Revised: 1983
Assignments: 3
Points: 6
Contact Hours (CME/CNE): 9
Text: FMFM 4-5 *Medical and Dental Support,* USMC, GPO, 1980
Type: SP—For medical personnel only

Designed to familiarize Medical Department personnel with operational planning activities in its support of the Fleet Marine Forces. It includes medical and dental organization, methods of support for MAGTF's in both conventional and unconventional warfare, casualty reporting, medical regulating, combat medical supply, and training of medical and dental personnel of the Fleet Marine Forces.

Note: Nonmedical department officers with landing forces staff planning responsibilities may enroll in this course with a written command endorsement detailing a "need-to-know."

* * *

Title: Civilian Personnel Policy
NAVEDTRA Number: 13125
Type: Officer-Enlisted
Revised: 1982
Assignments: 2
Points: 4
Contact Hours (CME/CNE): 6
Text: *Manager's Handbook,* OPM, GPO, 1981
Type: SP

Designed to familiarize the new first-level manager with some of the basic rules, regulations, and administrative procedures applicable to the federal employee and employer. □

Correction

In the November-December 1983 issue, page 25, of *U.S. Navy Medicine* we listed the names of those Medical Department personnel who died in the terrorist bombing at Marine Headquarters in Beirut. Two names were inadvertently omitted: HM3 Robert S. Holland and HN Jesse W. Beamon. Also, HN J.R. Kane should read HN Jimmy R. Cain.

Oral Physiology in End-Stage Renal Disease

LT Shirley Nylund, DC, USN
CAPT George W. Oatis, Jr., DC, USN

Renal failure is a disease affecting many organ systems including the oral cavity. Prior to the development of hemodialysis there was little hope for individuals afflicted with end-stage renal disease (ESRD). The waiting period for a transplant was lengthy, and those fortunate enough to find a suitable donor were often faced with their body's rejection of the transplant. Despite improvements in transplantation techniques and donor availability, hemodialysis is still the mainstay in the treatment of ESRD. In 1978, 8 million Americans were afflicted with kidney disease,(*1*) 35,000 of whom were undergoing hemodialysis treatment, with this number increasing by 7,000 per year.(*2*) Fortunately, the mortality of ESRD has been reduced significantly with the marked improvement in the technology of hemodialysis over the past 2 decades. However, considerable morbidity still exists which should be understood by the dentist, given the increasing number of patients with ESRD who require outpatient dental treatment.

Discussed in this paper will be general manifestations of renal disease (e.g., infection, anemia, hemorrhage), salivary changes, and specific problems associated with the hard and soft tissues of the oral cavity. Precautions to be taken by the dentist will also be reviewed.

Individuals with ESRD are more susceptible to infection and exhibit a decrease in healing presumably due to an accumulation of nitrogenous waste products and other toxic substances. Thus, oral infections may be more serious in these patients.(*3*) Post-transplant patients taking immunosuppressive drugs are also rendered more susceptible to infection.(*4*)

A normochromic normocytic anemia is seen in ESRD as a result of three mechanisms (*5*) (Figure 1). First, there is decreased production of RBC's due to a decreased erythropoietin from the kidney. Second, an increased destruction of RBC's results presumably because the accumulation of waste products provides a suboptimal environment for the cells. Finally, there is increased loss of blood due to hemorrhage from capillary fragility, anticoagulant therapy, and a decrease in number and platelet function. The latter results from an alteration in urea metabolism which leads to an increased guanidinosuccinic acid with resultant inhibition of platelet function.(*4,6*) During dialysis, patients are placed on heparin, but its anticoagulant effect is over within 24 hours. However, Coumadin may be given continuously to protect the graft or shunt used as the hemodialysis site. All these factors contribute to prolonged bleeding and clotting times with resultant hemorrhage and anemia. Orally, one sees pale, friable gingivae and possibly petechiae.(*4*)

As with most debilitating diseases, candidiasis is frequently seen in patients with ESRD, especially during or after antibiotic therapy. Lattamus observed abundant growth of the fungus in 11 of 30 patients (37 percent).(*7*) In patients receiving immunosuppressive medication, Westbrook reported candidiasis in 21 of 41 patients (51 percent) within 3 years after renal transplantation.(*1*)

The saliva from patients with ESRD often shows variations which impair the normal functions of lubrication, protection and mechanical cleansing of the teeth and oral mucosa.(*8*) The normal flow of saliva is 1,000-15,000 ml/24 hours, with 90 percent from the parotids and submandibular glands and only 5 percent from the sublingual and 5 percent

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from the minor salivary glands. The normal flow rate of the major glands is 0.05 ml/minute/gland at rest and 0.5 ml/minute/gland with stimulation. Clearly, 80-90 percent of the saliva is a result of stimulation.(*8*)

A frequent complaint of individuals with ESRD is a dry mouth. Dahlberg reports a decreased salivary flow rate in severe phases of uremia and fluid restriction.(*9*) However, in patients well controlled by hemodialysis, Dahlberg found no significant decrease in salivary flow rate before or after dialysis or in comparison with controls in six patients undergoing hemodialysis.(*9*)

In addition to flow, the content of saliva may also vary. Substances such as urea, uric acid, and ammonia are passively diffused from plasma; therefore, salivary concentration of these substances reflect blood levels.(*8*) In fact, it has been suggested that salivary urea levels could be used to assess efficiency of dialysis.(*10*) In uncontrolled uremia there is an increase in salivary urea concentration which is broken down by bacteria to ammonia, resulting in a fetid odor and oral ulcerations. This painful, burning uremic stomatitis is characterized by a red thickened necrotic appearing oral mucosa with superimposed gray or white thick exudate.(*4,7*) With proper control of renal disease, the incidence of uremic stomatitis is low.

Looking at salivary electrolyte concentration, Na+, K+, Cl− in pre- and postdialysis serum and saliva do not vary significantly from normal.(*9,11*) With respect to divalent ions, Earlbaum demonstrated that phosphate concentration was significantly higher in saliva from dialysis patients versus controls. In predialysis saliva it was 40 percent higher and in postdialysis saliva 31 percent higher than in controls.(*11*) Other exocrine glands (e.g., sweat glands) show an abnormality in divalent ion handling in ESRD, and one could postulate that the salivary glands may also exhibit this phenomenon. Earlbaum recently demonstrated no significant difference in calcium concentration in the parotid saliva from patients with ESRD and controls. However, he suggests that calcium may indeed be increased but not detectable because a majority of it is bound to salivary proteins.(*11*)

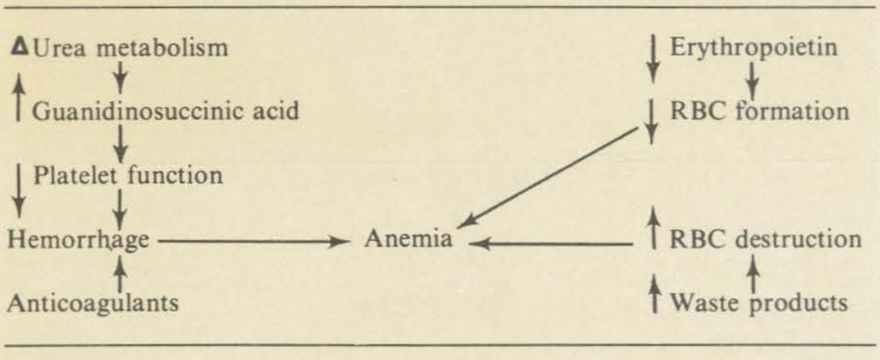
This alteration of divalent ion concentration could influence supragingival calculus formation since the mineral components of supragingival calculus are derived almost exclusively from saliva.(*8*) In addition, calculus formation has been shown to be influenced by urea concentration of saliva.(*12*) Thus, individuals with ESRD would be expected to form calculus more rapidly than normal. Supragingival calculus limits natural self-cleansing mechanisms, makes oral hygiene more difficult, and provides an expanding, roughened surface for plaque deposition.(*13*)

Finally concerning saliva, ESRD patients undergoing dialysis have an impaired ability to recognize primary tastes (sour, sweet, salt) with improvement of taste recognition threshold following dialysis, but still significantly worse than controls.(*14*) Zinc has been implicated in this abnormality, but this is a highly controversial issue.(*14*) Individuals with ESRD also may complain of a metallic taste, especially prior to dialysis treatment, presumably as a result of retained uremic toxins.(*1*)

Many changes are seen in the hard tissues of the oral cavity in patients with ESRD. If kidney failure ensues prior to complete development of the teeth, enamel hypoplasia may be seen as a result of hypocalcemia.(*1*) The teeth may also exhibit a brown extrinsic stain from liquid ferrous sulfate used for treatment of anemia.(*15*)

An increase in caries activity may be seen due to the high carbohydrate, low protein diet consumed by individuals with ESRD.(*5*) Alternatively, some people show a decrease in caries possi-

FIGURE 1. Anemia in End-Stage Renal Disease



bly a result of high urea salivary concentration which has antibacterial properties and can inhibit plaque formation.(*15*) Calculus deposits may also be protective against decay.(*15*)

A moderate idiopathic reduction in size of pulp chambers has been observed approximately 10 percent of the time.(*16*) There is also increased mobility of the teeth due to loss of alveolar bone.(*17*)

Parathyroid hormone level in ESRD is of major importance. The parathyroid glands are two paired glands located behind or within the thyroid gland. The chief cells are responsible for secretion of parathyroid hormone (PTH) in response to decreased serum calcium concentration. It maintains serum calcium level between 8.5-10.5 mg/100 ml and serum phosphate level between 2.5-4.5 mg/100 ml via the following mechanisms:

- increased tubular excretion of phosphate with increased reabsorption of calcium;
- osteolytic effect with mineral release; or
- increased calcium absorption from intestinal mucosa.(*18*)

In ESRD, with a decrease in GFR, the serum phosphate level is raised, and since the product of $PO_4^=$ and Ca^{++} is constant, there is a compensatory decrease in serum calcium. The resulting increase in PTH is known as secondary hyperparathyroidism. Attempts to decrease the serum phosphate level can be made by decreasing dietary phosphate intake or by using phosphate binding antacids such as Amphogel®, an Al(OH).(*5*)

A second mechanism contributing to secondary hyperparathyroidism involves vitamin D metabolism. Normally, vitamin D is hydroxylated in the liver followed by a second hydroxylation in the kidney. This product, 1,25-dihydroxycholecalciferol, is necessary for calcium absorption from the intestines. In renal failure, there is a decrease in 1,25-DHCC leading to a decreased absorption of calcium, and an increase in PTH activity(*19*) (Figure 2).

Bony changes of hyperparathyroidism include ground glass appearance of bone, loss of lamina dura, osteomalacia, osteoporosis, and rarely osteosclerosis.(*17*) Many bony changes go undetected because 30-50 perent of the bone mineral must be lost to be visible radiographically.(*16*)

Kelley studied the dental radiographs of 38 patients with ESRD looking at various parameters.(*16*) Loss of lamina dura was evident in 45 percent of these radiographs. This is not pathognomic of renal disease, however, since this phenomenon can also be seen in Paget's disease, Cushing's syndrome, fibrous dysplasia, neurofibromatosis, Addison's disease, osteomalacia, and giant cell reparative granuloma.(*18*) The trabecular pattern of hyperparathyroidism is a thin, delicate, finely meshed or even homogeneous pattern often described as "ground glass" or "granular." Although 16 percent of these radiographs show an increase in overall opacity, the investigators did not necessarily attribute this to a histologic increase in density but to the overall gray or white appearance of the fine trabeculations. Ten percent of these radiographs exhibited narrowed pulp chambers of idiopathic origin, and less than 5 percent had radiolucent lesions not associated with the roots of teeth (Figure 3).

It is possible that some of these lesions could be Brown tumors which are intraosseous vascular soft tissue lesions composed of a cellular hemorrhagic stroma.(*17*) They are well circumscribed unilocular or multilocular giant cell lesions, usually associated with primary hyperparathyroidism, but can infrequently be seen in poorly controlled secondary hyperparathyroidism.(*16-18*)

There are many precautions which the dentist should take in treating patients with ESRD. Dental treatment should occur on the day following dialysis in order for the anticoagulant effects of the heparin to have subsided and the benefits of dialysis to still remain. These patients are often exposed to hepatitis B virus and strict precautions should be taken in this regard.

Frequent examinations, prophylaxis, recalls, and oral hygiene instruction are recommended with a thorough removal of all potential

FIGURE 2. Hyperparathyroidism Secondary to Renal Disease

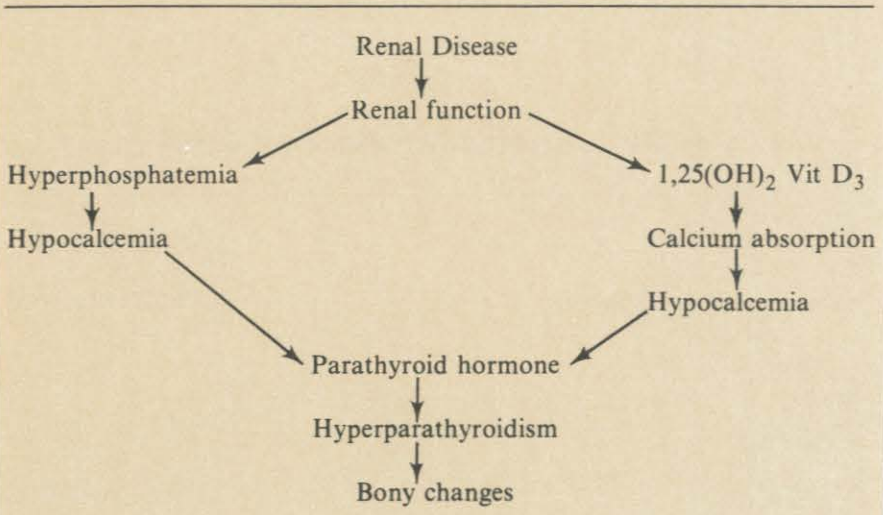


FIGURE 3. Radiographic Changes of the Jawbones in End-Stage Renal Disease (*16*)

Lamina Dura	45%	37% showed thinning 8% showed complete loss
Trabecular Pattern	37%	29% delicate fine pattern 8% total loss of trabeculation
Overall Density	16%	showed increase in density
Pulp Chambers	10.5%	showed moderate reduction
Radiolucent Lesions	5%	not associated with teeth

sources of infection, especially prior to transplantation. Careful observation for candidiasis should occur. Blood pressure should be monitored frequently, and the arm with the shunt should never be used for blood pressure monitoring or intravenous medication. Fluoride supplementation in the form of rinse or gel is recommended. A saliva substitute may be required.

Because of their increased susceptibility to infection, all patients should be covered with prophylactic antibiotics. In order to protect the graft, regimen A as recommended by the AHA should be used.(*19*) With regard to bleeding tendency, patients should have a PT, PTT, bleeding time, and platelet count before dental surgery.(*4*)

Use of lidocaine hydrochloride, 2 percent in patients with ESRD is safe. An amide, it is normally converted to MEGX and GX in the liver while 10 percent appears in the urine unchanged. The byproducts are active in both a therapeutic and toxic sense and are cleared by the kidney. When used within the usual range for dental procedures, lidocaine hydrochloride, 2 percent does not have adverse effects. However, because of its low dialysate due to high plasma protein binding and molecular size, dialysis is of little use in the treatment of toxicity.(*20*)

Drug therapy in patients with ESRD was recently reviewed by Bennett.(*21,22*) Concerning drugs most commonly used in dental practice, narcotics, steroids, erythromycin, and diazepan can be given in the usual dosage. Penicillin can be given in the usual dosage in moderate renal failure, but the frequency should be halved in severe failure. Tetracycline frequency should be halved in moderate renal failure and avoided in severe failure. Concerning non-narcotic analgesics, Tylenol should be avoided in severe renal failure, and the frequency of aspirin administration should be halved in severe failure.

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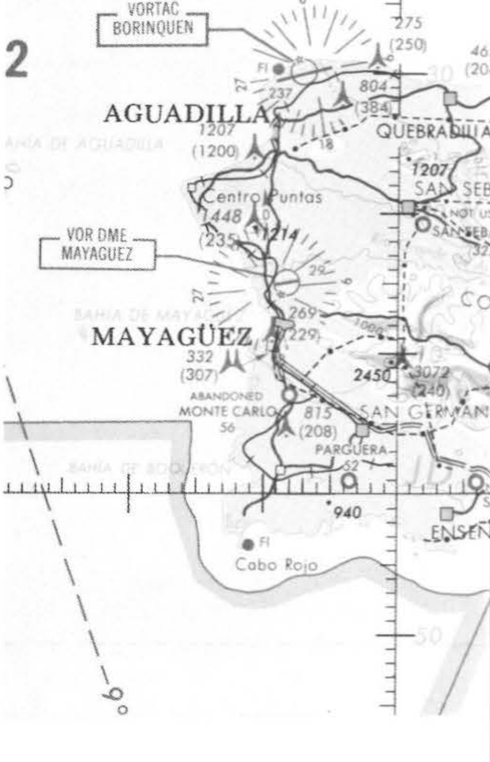
Millipedes That Sting

LT L. Milton Mays, MC, USN



Little known maladies can keep the scientist alive in all Navy doctors, even general medical officers (GMO's). I encountered one such strange episode resulting in injury while participating in Operation Ocean Venture on the Island of Vieques, Puerto Rico, in 1982.

As battalion surgeon for Battalion Aid Station 1/6, I, at first, had many reservations about treating patients under a fly tent. Dirt was the floor and trees the walls of my aid station and hooch. However, an outstanding first class corpsman and several other veteran FMF corpsmen helped me get settled in. Had this been a "real war," I was told that I probably would have been back at the beach sharing more comfortable housing with fellow physicians. But, because this was an exercise and because there had to be immediate treatment of any real casualties, there was the opportunity to see firsthand the combat living conditions of a leatherneck—eating C-rations, sleeping on the ground, tramping through the thorn bushes, but also enjoying the company of some of the most dedicated men I have ever met.

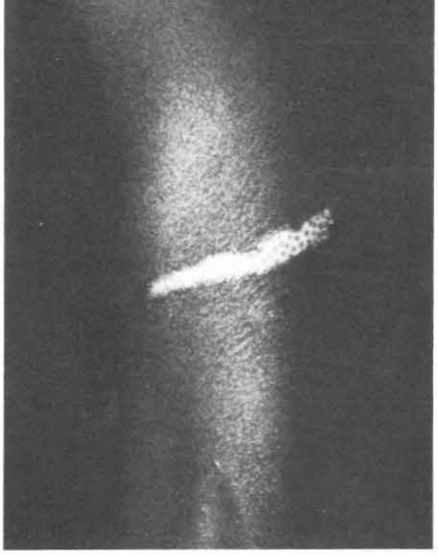


Figure 1

While waiting for the troops to move, a corpsman and I spotted a large black millipede in a tree. Had we known then what we know now we would have been more careful. A few days later one of the corpsmen awoke to find a linear blackened area on his arm. It was minimally painful, stinging only on occasion, and required only minor symptomatic treatment. A few days later I was informed that several marines had similar "blood blisters," some quite painful, especially on the palms. At that time I began to suspect the millipedes. After returning to the ship I photographed the healing lesion on the corpsman's arm (Figure 1). Also, other marines showed me similar lesions, which were mostly linear, approximately 8-10 cm in length and 1-2 cm in width. They healed at varying rates following 24 hours of a mild to severe burning sensation. A marine told of one of these "half snakes" that spit at him hitting his cheek at a distance of 2 feet. Like many others he crushed the offender and later embellished his story to include wild scenes involving "spitting snakes."

The Puerto Rico area has giant millipedes known to cause injuries (Table 1). Unfortunately, only a few entomologists are aware of this. Many medical and entomology texts report that millipedes are of little or no medical importance and generally are entirely harmless as they do not possess a poison apparatus.(*1*) However, the venom from some of these "harmless creatures" may cause blindness.(*1*)

A.J. Radford, in his book *Millipede Burns in Man,* goes into some detail. Millipedes are classified in the phylum *Arthropoda* in the class *Diplopoda* "two pair of legs per body segment." The subclass causing the most medical problems is *Chilognatha.* Their bodies are rounded with a short pair of antennae. They are slow moving and eat vegetable matter. Tropical millipedes are usually much larger. These are sometimes referred to as "giant" millipedes and have various sizes ranging from 10 cm up to 25 cm in length. Dorsally, their color is usually black

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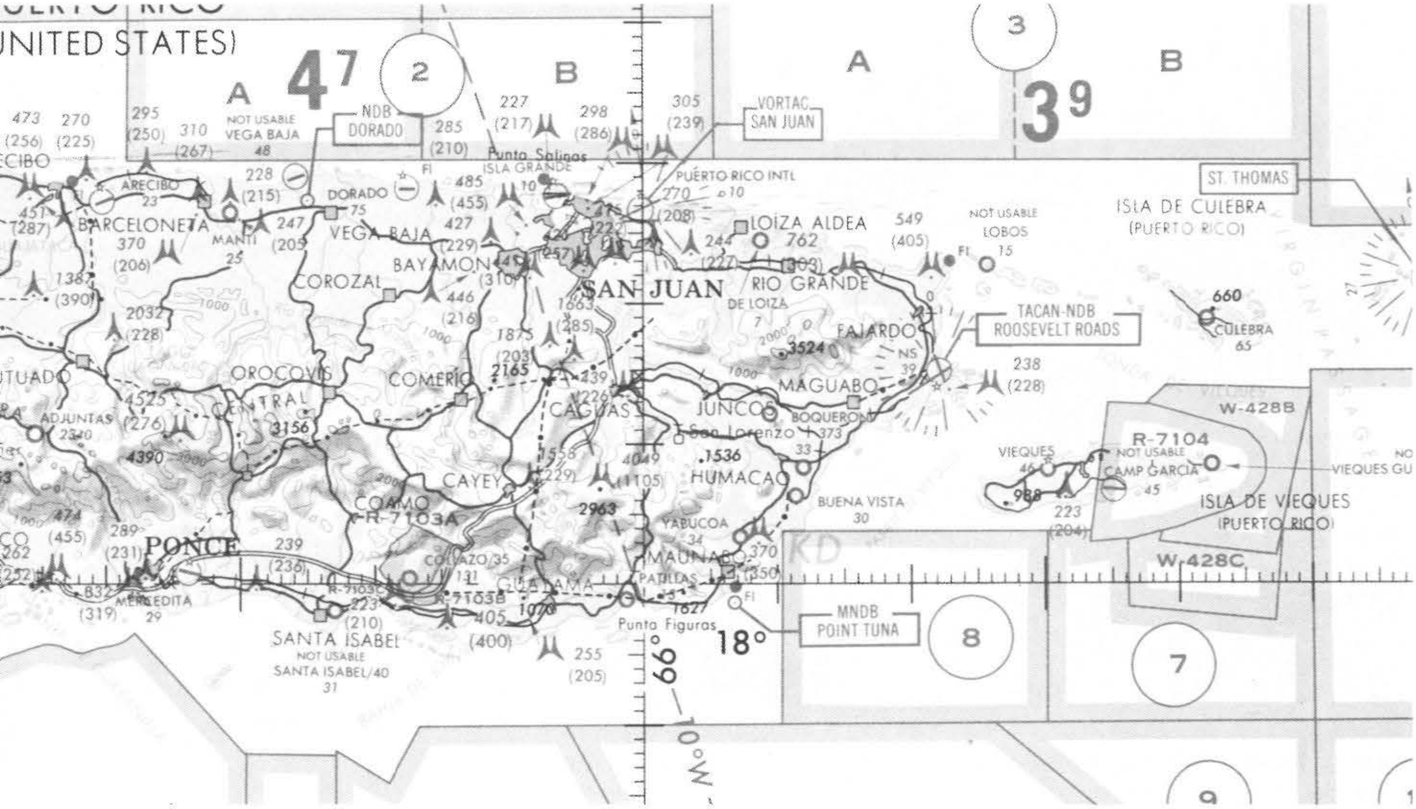

with a laquer-like sheen. The posterior two-thirds of the ventrolateral surface of some families is yellow to bright orange-red.(*1*)

The toxin composition of poisonous millipedes includes aldehydes, phenol derivatives, para-benzoquinones, and infrequently hydrogen cyanide.(*1,2,3*) The para-benzoquinones are also in secretions of some beetles, earwigs, and cockroaches.(*2*) The quinone, when applied topically, causes oxidation of the skin. The tanned areas darken with exposure to sunlight and the skin eventually will peel off. If taken orally, the quinone compound is capable of killing small animals.(*1*) The secretions that contain quinones are usually yellow to almost black in color as opposed to the milky color of hydrogen cyanide derivatives.

Some species of the *Polydesmoid* millipede family exude hydrogen cyanide. When approximately 0.2 grams per kilogram of this secretion was given orally to rabbits they died within 1 hour. Some natives of Central Mexico(*6*) and Malaysia(*1*) take advantage of this deadly toxin by coating the tips of their arrows with a mixture of crushed *Polydesmoid* millipedes.

Poisonous millipedes have only a few natural enemies which include the reduvid bug in India, the mongoose in parts of Africa, birds and toads in Papua New Guinea, and turtles in Panama.(*1*) Parasites at one time were felt to influence millipede life span. However, parasites now are felt to play a negligible role in controlling the density of millipedes.(*6*)

As can be seen in Table 1, the geographic distribution of toxic millipedes is mostly in areas of high-density

TABLE 1. Areas With Known Toxic Millipedes

Africa	Coastal Nigeria and Tanzania
Asia	India, Malaysia, Indonesia
Australia	Queensland
Oceania	New Guinea, Papua New Guinea,* and other Pacific Islands
South America and Caribbean	Colombia, Panama, Mexico, Haiti*

*Some millipedes found in these areas cause blindness and injury in domestic animals.(*1*)

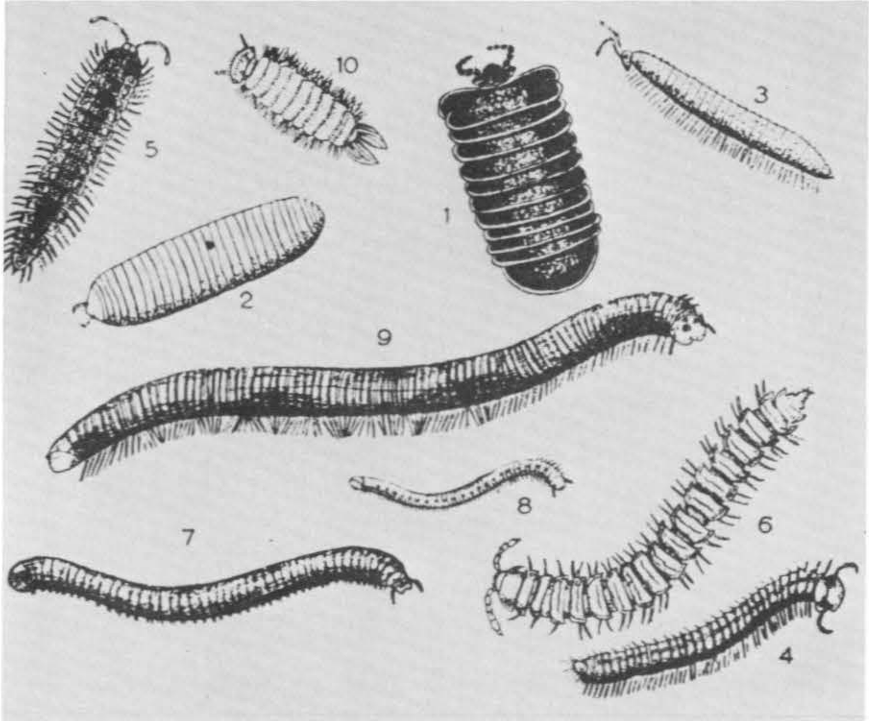

Figure 2. Examples of millipede families: (1) Glomeridae, (2) Polyzonidae, (3) Chordeumidae, (4) Craspedosomidae, (5) Polydesmidae, (6) Strongylosomidae, (7) Iulidae, (8) Blaniulidae, (9) Spirobolidae, (10) Polyxenidae.

jungle regions where they can avoid excessive sun but still benefit from the warmth and humidity needed for procreation and food.

In humans, the groups most affected by poisonous millipedes include children and, in our case, unwary, curious visitors. Some of the millipedes located in the Caribbean are capable of squirting their toxins several feet. (*1,6*) This can result in eye lesions which may be serious because the secretions are tenacious and hard to remove. If left untreated, blindness due to corneal ulcerations and scarring ensues. Even with prompt lavage, a whitish discharge and periorbital edema may be seen which may last for weeks. Skin lesions are initially seen as yellow brown staining and are accompanied by a stinging sensation. These progress to a deeper mahogany or purplish-brown iodine color resulting in a blister in 1-2 days. The stinging by this time has subsided. This lesion exfoliates to expose a raw surface sometimes with exudate, healing within 10-14 days. In darker-skinned individuals (Figure 1) the area may remain depigmented for weeks to months.(*1*)

Preventive treatment would include avoidance during daylight hours. Troops should be educated to the potential dangers of these millipedes. Insect-proof tents would be quite helpful. Once the injury has been sustained the treatment is not difficult but must be carried out as soon as possible, especially if the eyes are involved. If only the skin is involved, copious water lavage followed by the topical application of a bland ointment is all that is required.(*1*) If the eye is involved, copious lavage with sterile water for 20 minutes followed by examination for corneal burns is necessary. If the cornea is involved, one should instill a midriatic and a topical antibiotic and then pressure patch the eye for 24 hours. At that time the eye should be reevaluated. If the corneal burn persists for more than 2-3 days or if it is initially seen to be quite severe, an ophthalmologist should be consulted.

Although the literature reviewed does not address this point, it would seem that one potentially lethal exposure would be an open cut or inhalation of the toxin that includes hydrogen cyanide. The treatment in this case would be more complex, perhaps requiring intravenous nitrites and thiosulfates.

GMO's deliver routine medical care but occasionally both curious and unusual situations occur. Giant millipedes may not present a common health risk, but their presence offered me a unique challenge.

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Hospital Corpsmen/Dental Technicians Update

• **Dental Technician Mission Established.** NAVMEDCOM Notice 6600, dated 3 April 1984, promulgates an interim change to MANMED chapter 6, section VIII, Dental Technicians. This notice adds article 6-62, Mission, and revises articles 6-63(2) and 6-67(1). Changes to be effective immediately and retained (Notice) until revision of MANMED.

6-62. Mission

(1) The Dental Technician (DT) rating has a twofold mission:

(a) The primary function is to assist naval dental officers in providing such care for active duty Navy and Marine Corps as will prevent or remedy diseases, disabilities, and injuries of the teeth, jaws, and related structures, which may directly or indirectly interfere with operational readiness and the performance of military duties.

(b) During combat, mass casualty, or emergency situations at sea or shore, dental technicians shall, when directed, integrate with medical personnel and perform paramedical assignments. This assistance shall include, but not be limited to, aid in the care, treatment, and evacuation of mass casualties in combat or disaster. Emergency care or treatment to include artificial respiration, treatment of shock, control of hemorrhage, bandaging and splinting, cleansing and treatment of wounds, maintenance of patent airway, and the preparation of casualties for movement. Dental technicians shall be under the direct supervision of the cognizant Navy Medical Corps officer(s), if present.

6-63(2)

(2) The Dental Technician rating, Occupational Field XIV is comprised of personnel trained to assist naval dental officers in providing dental care for the personnel of the Navy and Marine Corps. Additionally, personnel are trained to assist with and render emergency medical care during combat or mass casualty evolutions. This group consists of the single general service rating of dental technician. Dental recruit, dental apprentice, and dentalman are general apprenticeships which lead to the dental technician rating.

6-67(1)

(1) *Assignment.* Enlisted dental personnel are assigned to naval dental clinics, naval hospitals, naval medical clinics, dental departments of ships and stations, Fleet Marine Force dental battalions and companies, and mobile construction battalions as technical assistants to dental officers. During mass casualty or emergency situations at sea and shore, dental technicians are assigned to assist and integrate with medical personnel as required. They are assigned to such other duties as may be indicated by their special qualifications and by current requirements for dental care.

• **Requests for DT technical and specialty training.** Applications for the following class "C" schools are diminishing in numbers and strongly encourage eligible dental technicians to apply:

(1) Dental Administrative Technician
CIN: B-330-0011 NEC: DT-8703
(2) Dental Laboratory Technology, Basic
CIN: B-331-0016 NEC: DT-8752
(3) Dental Laboratory Technology, Advanced
CIN: B-331-0017 NEC: DT-8753

The DT Technical and Specialty Enlisted Training Selection Committee convenes quarterly to review applications and select the most qualified personnel. Requests for training must be submitted on the Enlisted Personnel Action Request (NAVPERS 1306/7) with the required enclosures and forwarded to: Commander, Naval Military Personnel Command (NMPC-407C), Washington, DC 20370.

Prerequisites and application procedures are detailed in the following directives:

(1) BUMEDINST 1510.10E
Technical and specialty training for the Hospital Corps (HM) and Dental Technician (DT) ratings
(2) *Catalog of Navy Training Courses* (CANTRAC), NAVEDTRA 10500
(3) *Enlisted Transfer Manual* (TRANSMAN), Chapter 7 (Service Schools), NAVPERS 15909.

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Medical Service Corps Anniversary

The Navy Medical Service Corps will celebrate its 37th anniversary 4 Aug 1984 at the Bethesda Officer's Club located on the compound of the Naval Medical Command, National Capital Region, Bethesda, MD. All Medical Department officers, active, Reserve, and retired, are invited.

This year's theme, "Medical Service Corps—Around the World for 37 Years," highlights both the Corps' length of service to the nation, and its worldwide structure and commitments to the fleet.

In keeping with the theme, this year's dinner will include an international buffet with regional cuisines of North and South America, Europe, and the Orient. And, of course, the Seven Seas will be represented with an oyster and clam bar.

The uniform for military attendees is Dinner Dress, White Jacket, with optional Dinner Dress White for lieutenants and below. Civilian attire is black tie.

Reservations are required. For information, call LCDR Sheila Weinberg, MSC, (202) 295-0342.